

JULY 1916 ~ No 127

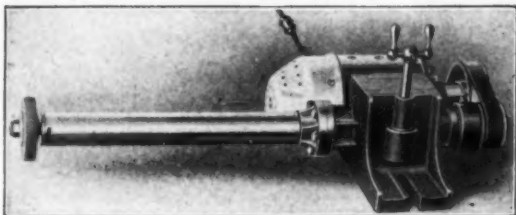
Monthly

A Reference for Buyers

HITCHCOCK'S
**MACHINE
TOOL LIST**

Distributed Free to Machine Tool
Users Everywhere in the United States and to
Dealers in American Machinery Abroad

Published by
A-H-HITCHCOCK
1220-1235 Caxton Building
Chicago



Combination Internal & External Grinder

Designed for a wide range of accurate work

Smaller size machine will grind internally as small as 13-16" diameter; larger size as small as $2\frac{1}{8}$ " diameter; depths up to 16".

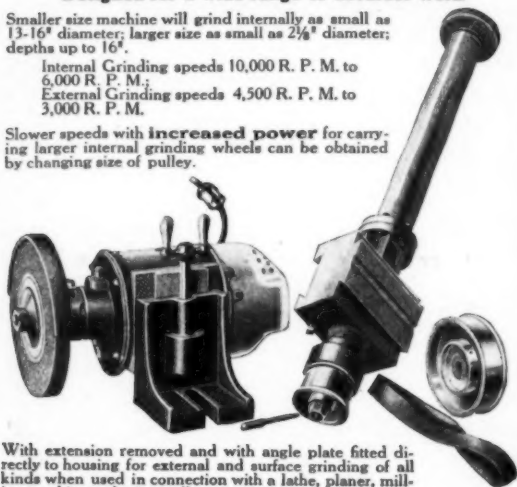
Internal Grinding speeds 10,000 R. P. M. to

6,000 R. P. M.;

External Grinding speeds 4,500 R. P. M. to

3,000 R. P. M.

Slower speeds with **increased power** for carrying larger internal grinding wheels can be obtained by changing size of pulley.



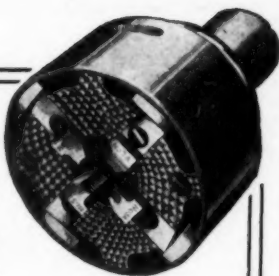
With extension removed and with angle plate fitted directly to housing for external and surface grinding of all kinds when used in connection with a lathe, planer, milling machine or boring mill.

Most Complete Line of Portable Electric Tools
Write for New Catalogue B

THE HISEY-WOLF MACHINE CO., Cincinnati, Ohio

New York Office, 50 Church Street

NAMCO Automatic Die Heads, pay in two ways



Accuracy of Threads Cut and Time Saved

The Chasers of NAMCO Dies are carefully hobbled and hardened, rigidly supported directly over the cutting edges and kept clean by a free feed of oil thru the head—three points resulting in uniform and accurate threads.

The opening and closing action of NAMCO Dies is therefore quick and positive. The Die does not have to be reversed—features that save time and cost.

Let us show you how NAMCO Dies will produce better threads, more of them and show a better profit on your thread cutting work. We have them for practically every requirement.

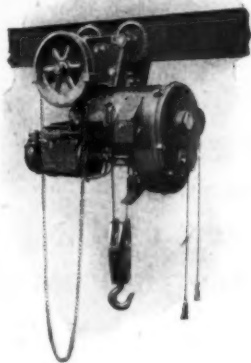
Ask for the catalog—no obligation.

THE NATIONAL-ACME MFG. CO.
CLEVELAND, OHIO

NEW ENG. PLANT: WINDSOR, VT.
CANADIAN PLANT: MONTREAL

Branch Offices—New York, Boston, Chicago, Detroit,
Atlanta, San Francisco, with Foreign Representatives

Makers of Gridley Single and Multiple Spindle Automatics at Windsor, Vt., and Acme Automatics, Thread Cutting Dies and Screw Machine Products at Cleveland, O.



A type "U" Hoist in your plant will replace from 10 to 15 laborers—and it will pay for itself in less than 90 days.

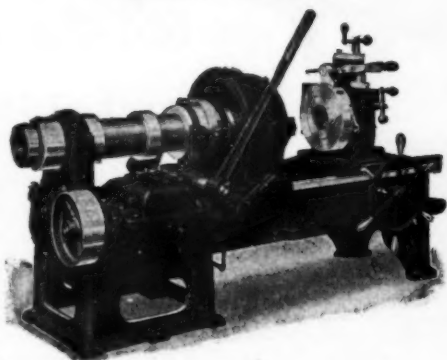
Built in sizes from $\frac{1}{2}$ Ton to 6 Ton capacity.

We'll be glad to mail you Bulletin 301-BH and prices.

PAWLING & HARNISCHFEGER CO.
MILWAUKEE WISCONSIN

Best Results at Lowest Cost

Every Day in the Year



With "B. & K." Pipe Threading Machines

Our 17 styles and sizes have 32 years' experience built into them. Every detail has had our careful, painstaking consideration, and our numerous repeat orders offer a testimony that is most gratifying and convincing.

B. & Ks. are built for quick, economical work, and give long, dependable service. They may be handled without gloves. The Peerless adjusting mechanism adjusts to the thousandth of an inch without the use of tools. The threads are not injured by the nipple holders. Write us about your needs and we will tell you about the machine best fitted to do your work.

Bignall & Keeler Machine Works
Edwardsville, Ill.

Hangers and Habit



**"Bantam"
For
Light Shafting**

Nothing but the
force of habit will
prevent your using

Unbreakable Steel Counter- shaft Hangers

Although they are better than cast-iron hangers in every way, they cost even a little less.

They do not break in handling or in use. They are lighter, therefore easier to put up, and cost less for freight. They are fully as rigid as cast iron and are much stronger. And ring-oiling bearings provide perfect lubrication, with only occasional attention.

Yes, we know that "habit" is strong, and you have regarded your cast-iron hangers as good enough. And "habit" does cling strongly to whatever has been regarded as "good enough" for a long time. But is anything "good enough" when there is something much better which costs less?

*Won't you break that
"good enough" habit
and investigate?*

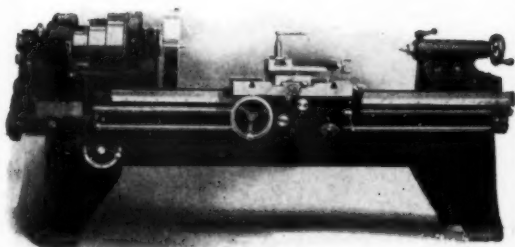
**Standard Pressed
Steel Company
Philadelphia, U.S.A.**



**"Hallowell"
For
Medium Shafts**

WALCOTT LATHES

Made in 14, 16, 18, 20 and 25" sizes

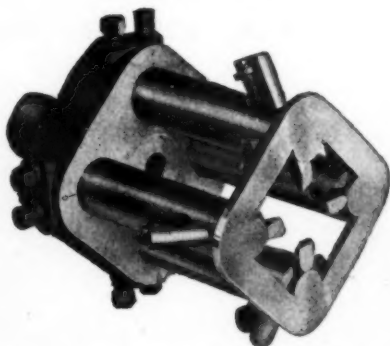


For
Tool-Room and
Factory

Walcott Lathe Co.
Jackson, Michigan

Watson Turning Tool

Model "B"



A Turning Tool with a Balanced Cut

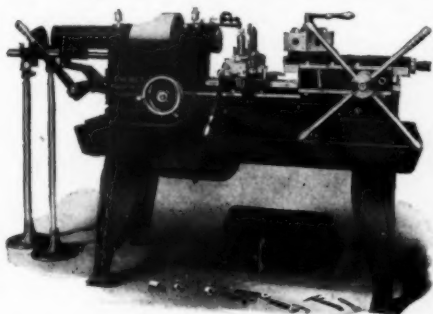
This tool fills a long-felt want for a **RAPID** and **EFFICIENT** means of reducing diameters in your screw machines and turret lathes. For use on castings, forgings, round, hexagon or square bar stock.

Built in four sizes

Circular on application

The Biggs-Watterson Co.,
Hippodrome Bldg., Cleveland, Ohio

**The Pierce Heavy Pattern
Turret Screw Machine**
Capacity: 1 1-16x8 Inches



A simple, convenient, accurate machine of exceptional range and capacity for its size, with the rugged construction to withstand the strain of universal use.

It has every modern convenience to facilitate production, which makes it a large producer of accurate work in turning bar stock requiring one or more operations, upon the basis of the closest economy.

We want you to become acquainted with this great tool, and shall take pleasure in telling you all about it, even if you are not yet ready to buy. You incur absolutely no obligation in writing for complete information; the obligation is ours to place its merits before you so plainly that as practical men you cannot fail to recognize them.

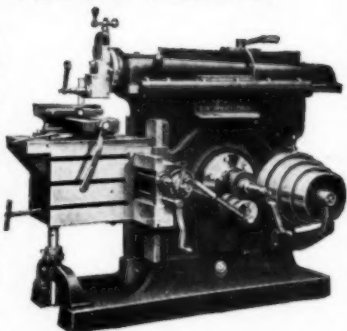
We'll appreciate your inquiry; you'll appreciate our machine

Pierce Machine Tool Co.
617 West Jackson Blvd., • Chicago, Ill.

SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through
Speed Box.

24", 28", 32"
Geared
Shapers of
the Belt Shift
type.



The Smith & Mills Co. Station B,
Cincinnati, O., U.S.A.

Greater Rigidity and Strength



New Dalton 6-in. Type "B-4"

It has the strength and power for work often done on 14" to 20" lathes, and the actual swing is 7 1/4". Daltons are saving money in many plants on quantity production. They have the accuracy for the finest tool room work.

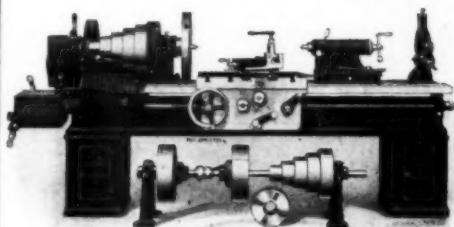
Electric drive, foot power or power driven; various mounts, for floor or bench; several attachments.

Bulletin B-602 awaits you

DALTON MACHINE CO., Inc., 1910-15 Park Av.
NEW YORK

The "U. S."

A 20-In. Heavy Duty Lathe
Of Simplicity and Strength



Quick Change, 5-Step Cone, Single Back Gear

In this thoroughbred tool we have added new and important improvements of our own to the best there is in lathe practice today, making a combination which we believe is unequalled for practical results in the all-around work of the tool room and shop.

Sturdy in design, powerful, accurate 18" from spindle to 1-1000", simple and easy to operate, and finished "on honor" to the smallest detail, we offer this lathe in confidence to those who believe in the economy of buying *service* when installing a new lathe.

*We invite the fullest investigation
We are ready—now. Are you?*

United States Lathe & Machine Co.
CINCINNATI, OHIO

14,000 rivets headed for \$1.00 on a
Grant Noiseless Riveting Machine



A boy or girl at \$1.00 per day can head 14,000 rivets on bicycle mud guard braces in ten hours.

Rivet heads formed by this machine have a highly polished finish.

The machine is absolutely NOISELESS in operation.

Breakage of castings or marring of surface of articles being riveted, entirely eliminated.

We can furnish machines for belt or motor drive for rivets up to $\frac{3}{8}$ " in diameter.

*Send us samples to be riveted and returned to you
 Catalog?*

The Grant Mfg. & Machine Co.
 C. E. Station, Bridgeport, Conn.

**The Improved Rhodes
 Combined Shaper and Slotter**

**A 2-in-1 Tool
 At a Low Price
 For Small Work**

With Vertical Attachment, as shown, it is a real vertical and horizontal machine.

Built like a big machine tool.

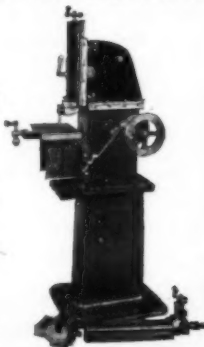
But it costs less.

Wonderfully efficient and economical in shaping and slotting light work—in making tools, dies, models, etc., etc.

An economy tool in price and in operation.

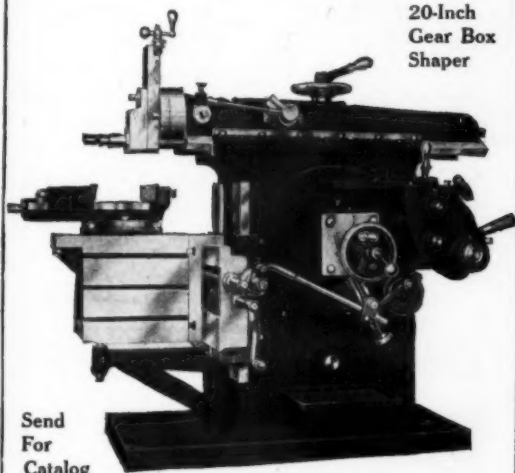
Write for full description

Rhodes Mfg. Co.
 Hartford, Conn.



DAVIS SHAPERS

20-Inch
Gear Box
Shaper



Send
For
Catalog

14" Cone pulley drive.
16"—20"—25" Single pulley,
Gear Box. Can be arranged
for motor drive.

DAVIS MACHINE TOOL CO., Inc.
ROCHESTER, N. Y., U. S. A.



Blueprints

The Wickes

Continuous Electric.
Sells at half the
price. Uses half
the current
of others.
Perfect prints
up to 48" in
width and of
unlimited
length.

Wickes Bros., Water St.,
Saginaw, Mich.

Do You Use Air?

THE POWELL AIR GUN VALVE

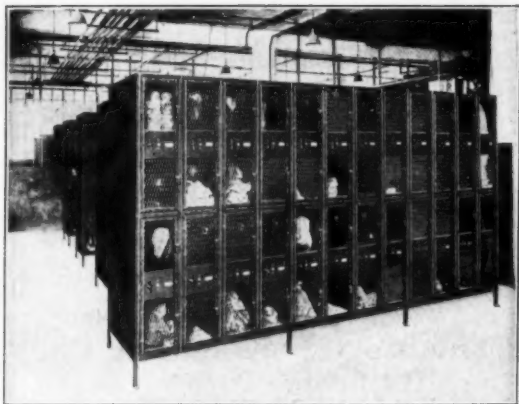
"JUST PRESS"
THE BUTTON



BUY
POWELL
AIR GUNS
KEEP
CLEAN

CLEANS
WORK BENCHES
AND
MACHINE TOOLS
MADE IN SIZES
 $\frac{1}{8}$ " TO 1"

ORDER A SAMPLE
THE W. M. POWELL CO.
1200 DRAPER ST.
CINCINNATI, O.



Terrell's Steel Lockers in a Motor Plant

Economies of Steel Equipment

The first cost of steel equipment—whether lockers, bins or shelving—is a little more than for wood, but probably not nearly so much as you think. Then what follows?

One lasts practically forever, the other doesn't; one requires no repairs, the other does; one can be rearranged without damage, the other can't; one saves space, the other wastes it; one prevents the spread of fire, the other feeds it; one is sanitary, the other isn't; one gives permanent satisfaction to employer and workmen, the other doesn't; and, further, our experience has enabled us to adapt our steel equipment to the space and needs of many a plant better than any carpenter could ever do it with his materials and limited knowledge of storage requirements.

Glad to post you. Your name and address?

Terrell's Equipment Company

Hall & Division Sts., Grand Rapids, Mich.

Designed For Manufacturing



But built good enough for the Tool Room. If you have any doubt about it, just try one. Our two-speed Friction Counter and plain Index Center help you to do the trick.

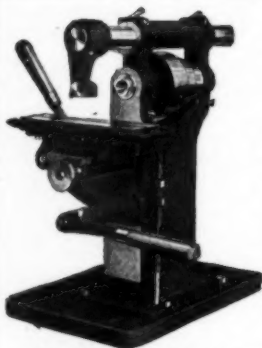
Send for circular

The Carter & Hakes Co.

West Winsted, Conn., U. S. A.

AGENTS—for New England and New York, Hill, Clarke & Co.

WESTERN AGENTS—Marshall & Huschart Machinery Co., Chicago, St. Louis, Indianapolis.



Burke's No. 3 Bench Millers

Are Seasoned Tools

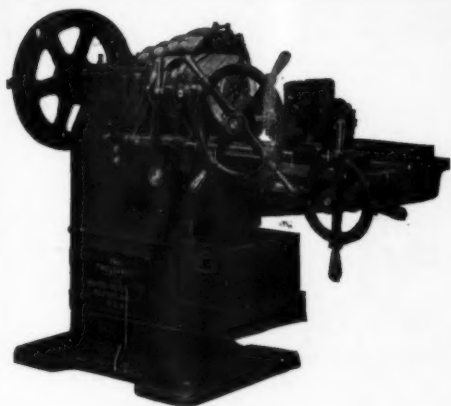
Our system of tests insures accuracy, and our methods of construction make it permanent. Frames and parts are carried 6 to 8 months, after work begins on them, before the completed tools receive our final O. K., and all parts are finished and fitted with exceptional care.

Longitudinal feed, 6 in.;
traverse feed, 3 $\frac{1}{2}$ in.; vertical
motion of knee, 8 $\frac{1}{2}$ in.; table
surface, 3 $\frac{1}{2}$ x12 inch.

Write for Catalog, which also shows larger and smaller sizes.

The Burke Machine Tool Co.

Conneaut, Ohio



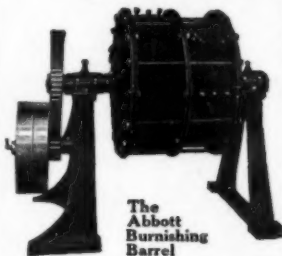
Reliance Bolt Cutters

Built in sizes $\frac{3}{4}$ inch to 6 inches, Single, Double and Triple, of the most up-to-date design. There is, also, a good reason why the "Reliance" is such a satisfactory machine for accuracy of threads cut, large production and low cost of maintenance, even in the hands of inexperienced labor. A lot of this reason is in the Opening Die Head, and we would like to tell you all about it. Interesting information for the asking.

The Foote-Burt Co., Makers
Cleveland, Ohio

Burnish 1,000 Pieces at a Time

By the Abbott Steel Ball Process



The
Abbott
Burnishing
Barrel

Instead of finishing one piece at a time by hand, one man can tend several barrels at a time, each barrel finishing thousands of pieces. Solid articles or plated of

Gold, Silver, Nickel or Steel

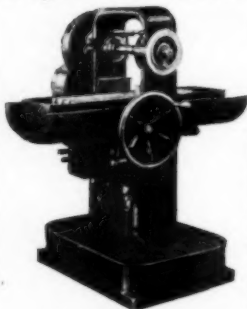
are not broken, and the finish is perfect. It means a reduction in cost from 75 to 99 per cent. Send for our free copyrighted Book on Burnishing.

The Abbott Ball Company

Elmwood District, Hartford, Conn.

We also make Steel Bearing Balls. Let us quote. What size?

Rapid and Accurate Production



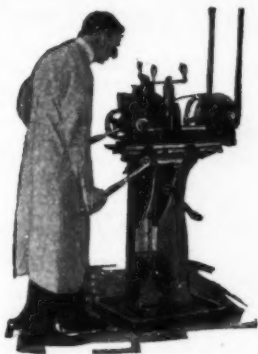
Briggs High Duty Reduces Costs

Designed on original lines by a manufacturing engineer, this new machine is exceptionally good for form and gang milling of steel parts for guns, automobiles, etc.; it is also an ideal machine for general tool room and shop use.

It takes wide cuts in hard steel to the full power of a 3½-in. double belt, without tendency to chatter. It is rigid, accurate, convenient and powerful.

As a cost reducer it's a top-notch. Write for details.

GOOLEY & EDLUND, Inc., Cortland, N. Y.



There's Profit in the use of The Whitney Hand Miller

Because it is an all around machine capable of taking both light and heavy cuts. With it you can cut gears, cams, sprockets, do keyseating, profiling, straddle milling, slotting, slabbing and countless other operations.

The *Whitney* is of so substantial a construction that it can be often used to great advantage in place of larger tools costing twice the money.

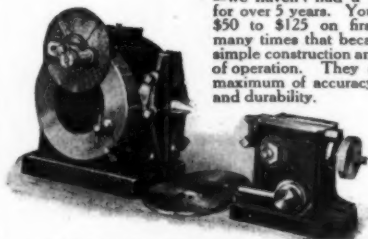
The machine is well built, inexpensive and will pay for itself in a short time.

Simply drop us a postal for details.

The Whitney Mfg. Co., - Hartford, Conn.
Chains—Keys—Hand Milling Machines

They Sell and Stay Sold

Dickow's Guaranteed 10-In. Universal Index Centers



—we haven't had a "comeback" for over 5 years. You save from \$50 to \$125 on first cost, and many times that because of their simple construction and great ease of operation. They embody the maximum of accuracy, simplicity and durability.

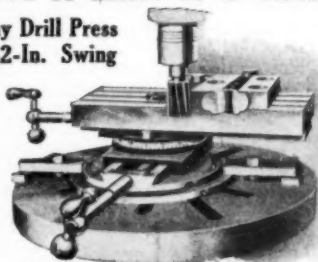
Get the Original—Beware of Imitators
Sold by all dealers. Write today for particulars.

Fred. C. Dickow, 35 So. Desplaines St., Chicago, Ill.

Gives You A Miller In 2 Minutes

With Any Drill Press
14 to 42-In. Swing

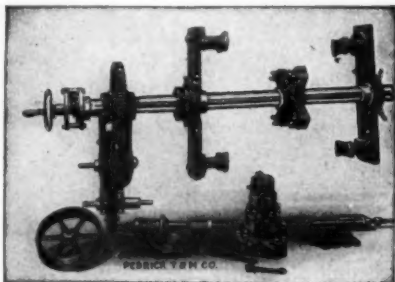
**A Big
 Convenience
 For Any
 Modern
 Machine
 Shop**



The Davis Milling Attachment cuts keyseats straight or taper cuts the Woodruff or half moon keyseats perfectly; also mills deep grooves, slots and cams. Cutters are obtainable from all twist drill and cutter makers. We also make cylinder reamers for reboring the Ford car. Our low priced air compressor has 10 times the cooling surface of any other. Send for circulars.

Hinckley Machine Works, HINCKLEY, ILL.

Headquarters For Portable Boring Bars



Since the time Portable Boring Bars were first manufactured the Pedrick name has been intimately connected with them, and this association has been the means of making every improvement that is in evidence today on our type of machine.

For convenience, accuracy and durability you will find our equipment more than satisfactory and capable of saving time and money in such measure that the cost is largely returned at every using.

Write for a bulletin on this tool and our others:

Pipe Benders, Portable Millers, Crank Pin Turners, etc.

Pedrick Tool & Machine Co.

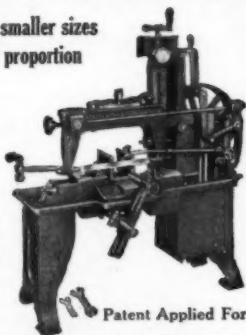
3644 N. Lawrence St., Philadelphia, Pa.

Only 10 Minutes to Cut 6-in. Steel

**The Marvel No. 4 cuts smaller sizes
of cold rolled steel in proportion**

Cuts on the draw stroke and lifts free of the cut on the return. A graduated free wheel gives any desired pressure on the saw blade.

Machine stops automatically when piece is cut off, and can also be set to stop at any desired depth in the cut. It embodies speed, accuracy and expert workmanship. We also make other hack saws, punches and shears.



Write for Circulars

Patent Applied For

**Armstrong-Blum Mfg. Co., 341 N. Francisco Ave.
Chicago, Ill.**

Cuts Hard Steel Without Waste Quickly and Cheaply

Don't notch and break your high speed steel—the better
and cheaper way is to use

PETER BROTHERS Abrasive Metal Cutter

Cuts any hardened steel, soft metal, rods, bars or tubing, or combined wood and metal so smoothly and accurately, that the waste is only what the wheel cuts out—1-16-in. Doesn't draw the temper and saves grinding. Soon pays its own cost.

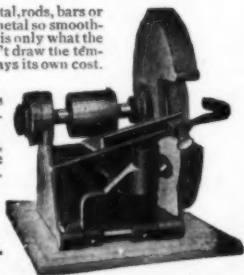
8" Size, \$17.50, with C. S.
Splendid for tool room. Cuts
high-speed steel up to 1/2" square.

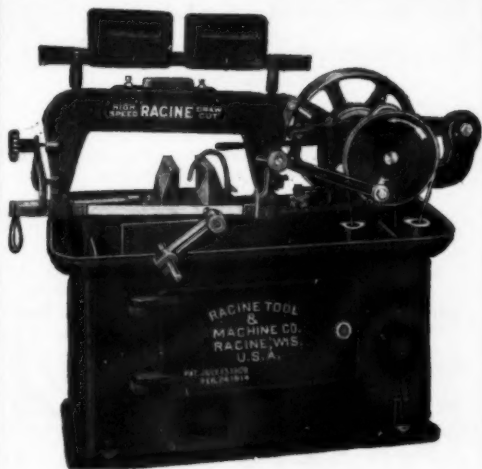
12" Size \$44, with C. S.
Cuts up to 2 1/2" diameter,
round or square, at any angle
up to 45 degrees. Ball bearing.

15 Days' Free Trial

Write us or ask your dealer

**PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.**





Why Is It

That so many large shops are now equipped and being equipped with

The Newly Improved Racine High Speed, Metal-Cutting Machine?

FOR MANY GOOD REASONS—among others—because for speed, accuracy, economy and ease of operation THE RACINE cannot be surpassed. You MAY NEED ONE NOW. We will send a RACINE on any trial basis that is fair. WRITE US or any good dealer.

Racine Tool & Machine Co.

1500 Junction Ave. S., Racine, Wis., U. S. A.

YOU Want Tool Holders that have MADE GOOD

Armstrong Tool Holders

Were Awarded The

Grand Prize

**The Highest Possible Award at the Panama-Pacific
International Exposition—1915**



They Always Make Good

They Are Used in Most of the Big Machine Shops of the World

Send for Catalog

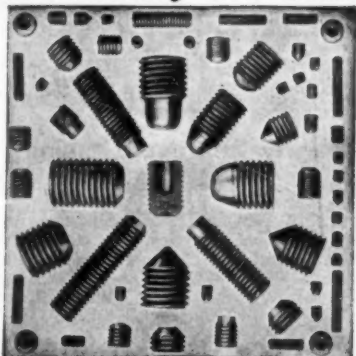
Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.



Allen Safety Set Screws



Send for circular No. 13 and sample screws (for testing).

ALLEN MFG. CO., - Hartford, Conn.

Cochrane-Bly Company

Rochester, N. Y., U. S. A.

Manufacturers Of

Metal Sawing Machines

Made in five sizes, to cover every manufacturing requirement. Their thin milling saws combine high speed with the closest economy in high-priced steel.

Automatic Saw Sharpeners

Made in two sizes, for saws up to 15" and 24" in diameter. They grind and bevel at one operation the high and low tooth type milling saw.

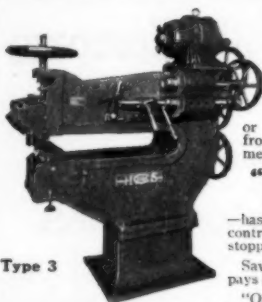
Die Filing Machines

Made in two sizes, for the accurate filing of dies, punches, metal patterns, jigs and special gauges, and for filing duplicate parts requiring a close finish.

Universal Die Shaper

For die making and general tool room work. Operates both shaper ram and milling spindle at any angle.

**When considering this class of equipment,
would appreciate being consulted.**



Type 3

**Saves
90% Labor**

No Cutting In From Side

Type 3 "Quickwork" Rotary Shear cuts serpentine or the most irregular curves or openings in 3-16" thick steel or lighter without cutting in from side of sheet. Leaves metal perfectly flat and true.

"QUICKWORK" Rotary Shear

—has 4 changes of speed instantly controlled by lever. Started and stopped at any point of cut.

Saves 5 to 40% of stock. Soon pays for itself.

"Quickwork" Rotary Shears are made to cut from 16 gauge to $\frac{1}{4}$ " thick steel. Sold on trial—fully guaranteed.

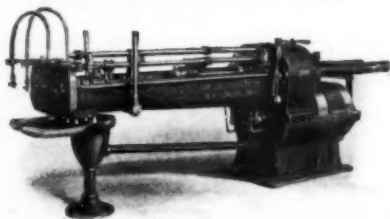
Send for free sample cuttings, descriptions and prices. Write today.

H. Collier Smith

815 Scotten Ave.,

Detroit, Mich.

Broaching Machines And Broaching Tools



Our Famous Double Machine

The Most Complete Line In The World. We make our machines in 5 sizes and 11 types. Send for particulars.

THE J. N. LAPOINTE CO., - - New London, Conn.



Why Does The Peerless Lead?

Because it was designed by the originators of this class of high speed machinery and every detail is perfected from real shop experience. It embodies all the latest improvements in this type of machinery, and also some exclusive features that are well worth consideration in selecting a tool of this type.

In operation it is semi-automatic, which means it continually saves time instead of wasting it. Just stop to figure if one man operates ten machines and saves only ten seconds on each cut. In a short time your figures will show a saving in operator's time that will cover the cost of machine.

A saw blade in this machine will cut as much material as in any other machine on the market, and will also cut considerably faster according to the grade of material.

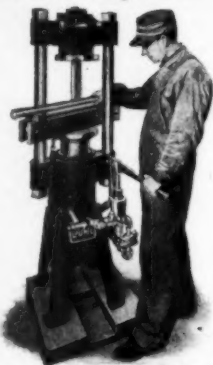
In order for anyone to appreciate the many labor saving improvements in this machine it must be tried out under your own cutting conditions; for this purpose we will gladly send you one on thirty days' free trial.

Peerless Machine Co.

1609 Racine St.,

Racine, Wisconsin

Lourie Hydraulic Arbor Presses



Many Styles—Many Sizes
for
Many Purposes

Hand or Power

To force pulleys and gears on and off shafting.

To bend or straighten shafting or bars.

To punch or form metal.

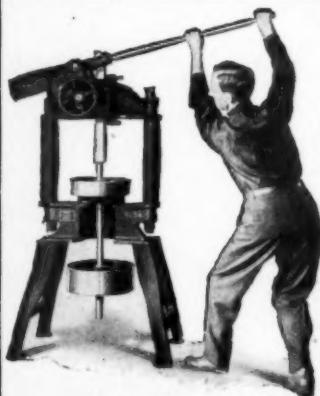
Lowest Prices

ever made on hydraulic presses.

**Rapid Movement
Heavy Pressure**

*Write for Catalog of
Hydraulic Machinery*

Lourie Mfg. Co.
Springfield, Ill.



No. 24 Press

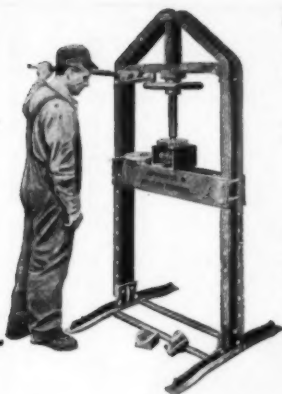
**Efficient
Equipment
Atlas Presses**

for building and repairing automobiles and general machine shop operations requiring pressure up to 25 tons and centering capacity up to 38 inches.

For driving mandrels; bending and straightening, broaching, embossing with dies, setting bushings and many other every day manufacturing jobs, there is an Atlas Press. All sizes for all purposes. *It will pay you to investigate.*

Atlas Press Co.

317 N. Park Street,
Kalamazoo, Mich., U. S. A.



Pressure—
20-Tons

Leverage—
1500 to 1

Width—
32 or 42 in.

WEAVER

Forcing Press

Quick Acting—Powerful—Roomy

THE clean, open construction of this Press gives it a greater range of application than any other Press on the market.

The solid one-piece frame gives it greater strength than other presses of twice the weight.

5-inch, 9-pound channel steel frame; 15-inch hand wheel, carried upon ball bearings. Bronze Thrust Bearings. Screw 2 inches in diameter with 3-pitch Acme thread. Range of movement, 12 inches. The screw does not revolve.

Net Price (32-in. Size) \$56.00

Weaver Manufacturing Co.

2179 So. 9th Street,

Springfield, Illinois

Combination Disc Grinder & Roll Sander

"Best machine ever built for pattern shop use"

Patented



The No. 20 Gardner combines both the disc wheel and the sanding roll into a compact, sturdy and accurate machine. The disc wheel is used for producing flat surfaces and external curves; the sanding roll perfects internal curves which have been roughed out on a band saw.

Both this disc wheel and the roll remove stock with extreme rapidity and accuracy. With this machine at hand your apprentice boy can do, with greater speed and quality, much of the work formerly done by your best man. A Gardner No. 20 soon pays for itself in any modern pattern shop working four or more men.

Get the details today

Gardner Machine Co.

The Disc Grinding Authorities

Beloit, Wisconsin

Largest Disc Grinder Builders in the World



The *Greenfield*

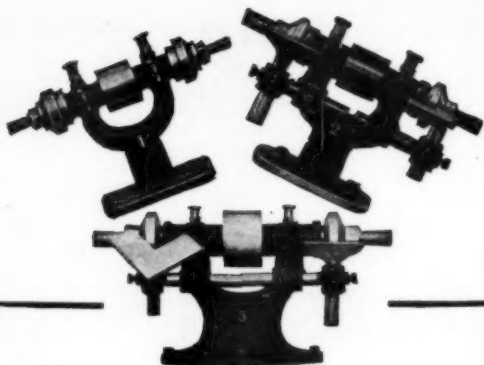
For Special Work, Tools, Jigs, etc.

This Universal Grinder is just the machine needed in many of the shops engaged in equipping for the manufacture of special lines. It is an all-around grinder and will handle about any kind of a job that comes within its range.

It will turn out accurate, dependable work. Also, we believe we are perfectly correct in stating that we furnish this machine with a larger and more complete set of attachments than can be had for any grinder selling at anything like the same price.

We also build Plain Grinding Machines for production work

Greenfield Machine Company
Greenfield, Mass., U. S. A.

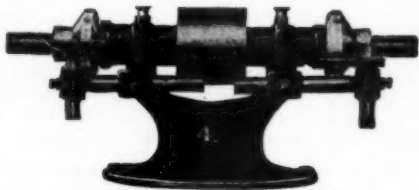


Special Value in Grinders

Partridge Tools are Efficient and Economical

Yes, they look like others, but you will find a real difference in details of design and construction. They are built like machine tools, with the arbors and collars accurately turned and balanced, and properly lubricated and protected against dust.

Partridge Grinders run easier, last longer, and give better service. Made in quantities sufficient to keep down both manufacturing costs and the price. I can serve you in Bench, Column and Cabinet Grinders; Foot Presses and Bench Tapping Machines; also Countershafts, in all sizes—all containing extra value because I want your repeat orders. Just write to



E. O. PARTRIDGE, 2041-49 W. Lake St., CHICAGO

Save

$\frac{1}{2}$ Your Drilling Expense

$\frac{1}{3}$ Your Drill Cost

$\frac{1}{4}$ Your Drill Grinding Cost

Install a New Yankee Drill Grinder

Catalog and Particulars on Request

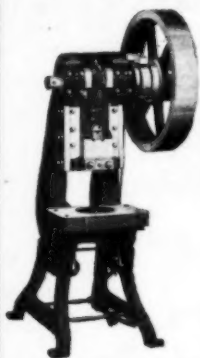


Wilmarth & Morman Co.

1185 Monroe Ave., N.W. Grand Rapids, Mich., U.S.A.

Speed, Power, Strength

Are combined to the
Fullest Extent in



HIGH DUTY
ROCKFORD
PUNCH PRESSES

Made in **Straight Side** and
Inclinable types and various
sizes. Specially adapted for
Manufacturing.

Write for complete details

Rockford Iron Works
Rockford, Ill.



Beaudry Hammers

For General Forging

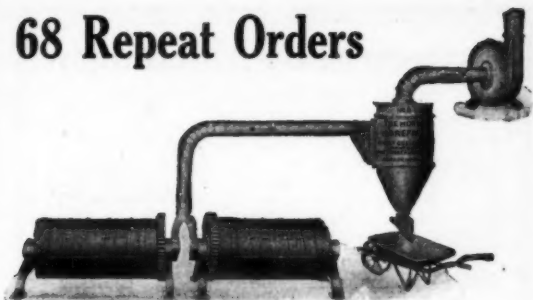
**Saves Fuel, Time
and Labor.**

**Cuts Forging Costs
in Two.**

Belt or Motor Driven

Beaudry & Co., Inc.
141 Milk St.,
Boston, Mass.

68 Repeat Orders



**From 8 Firms of National Reputation
— For Morse Dust Collectors —**



Expert Engineers employed by AA AI organizations because of their technical training and skill, are continuing to send in repeat orders for Morse Rarefied Dust Collectors. We shall be glad to mail you a list of these prominent customers.

The main facts are these: The Morse saves much power; seldom needs repairs; collects the most troublesome dust efficiently; does away with all cleaning out by hand. You are assured of bed-rock economy.

An instructive Booklet is yours for the asking

The Knickerbocker Company
Jackson, Mich.

Pattern Shop Machinery

Special Prices if you refer to this ad.



Band Saws

Chicago No. 00 27 in. Wheels
 " No. 0 32 " "
 " No. 1 36 " "



Saw Tables

Chicago No. 5 Stationary Table
 " No. 9 Tilting Table
 " No. 10

Boring attachment if wanted.



Jointers

8 in., 5 and 6 ft. tables and guard.
 12, 16, 20, 24 and 30 in., 7 ft. tables
 and guard.

Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

Chicago Machinery Exchange

1214-1228 Washington Boulevard, Chicago

An Ideal Location

For Machine Shops, Foundries and Factories

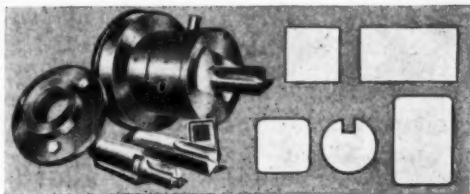
Labor: Plenty of it at very moderate wages, with cheap rents and a relatively low cost of living. Frequent interurban electric service permits drawing additional labor, if needed, from miles around.

Transportation: Main line of Pennsylvania R. R. and the great Indiana system of electric railways. This means not only good service, but being located in the heart of one of the greatest industrial centers of the country, it also means short hauls to an immense trade.

Full data, covering cheap fuel, accessibility of raw materials, and complete local information, gladly furnished upon request by the—

Greenfield Business Men's Association

Greenfield, Indiana



Radbore Heads

**Maximum Accuracy
Minimum Cost**

The Universal tool for all square and rectangular work. Bores holes in one operation with equal facility in any material from the hardest metal to the softest wood.

UNIVERSAL because although it has been installed in most of the largest manufacturing plants, its economy appeals just as strongly to the most modest machine shop.

Radical Boring Head Corporation
90 West Street, New York City

Keyseater

For Milling

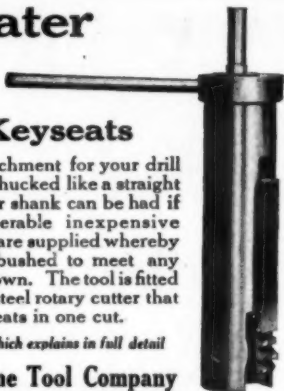
Internal Keyseats

This tool is an attachment for your drill press. It can be chucked like a straight shank drill. Taper shank can be had if required. Innumerable inexpensive eccentric bushings are supplied whereby the tool may be bushed to meet any diameter above its own. The tool is fitted with a high speed steel rotary cutter that mills internal keyseats in one cut.

Write for Catalog O which explains in full detail

National Machine Tool Company

2268 Spring Grove Ave., Cincinnati, Ohio



What Does it Cost to Remove a Broken Tap?



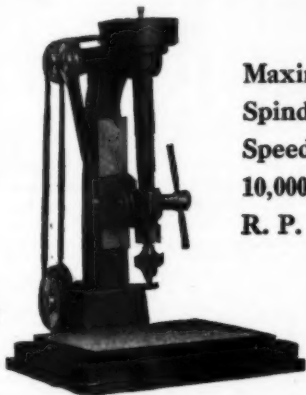
This will take it out quickly, and practically without expense. An hour or more might easily be spent in trying to remove a broken $\frac{3}{8}$ " tap in the ordinary way, which time, for that one tap, would go far toward paying the cost of an Extractor, which is only \$1.44 delivered. Any one can use it. Merely slip the four prongs into the flutes of the tap, and you have practically a solid tap, easily removed with an ordinary tap wrench. Sizes for No. 8 to $1\frac{1}{4}$ " taps.

Write for prices and trial offer.

THE WALTON CO., Hartford, Conn.

Save Money

with this
High Speed Drill



**Patents
Pending**

**Maximum
Spindle
Speed
10,000
R. P. M.**

**Double Your Production on Holes
up to $\frac{3}{8}$ " in diameter**

**This machine is carefully and accurately built
to give the greatest service. Equipped with
Hess Bright Ball Bearings throughout.**

Ask for Bulletin No. 502

**Leland-Gifford Co.
Worcester, Mass., U. S. A.**



Kelly PRODUCTION Tools



The outfit shown in cut, with three turret bars and 36 type B reamers, gives any diameter in ten thousandths from 15-16ths to 5% inches. Each reamer has an adjustment of 1/4-inch.

Kelly Boring and Reaming Tools are made for any diameter from 9-16ths to 12 inches and larger.

Write for the Catalog

THE KELLY REAMER CO. CLEVELAND, OHIO, U. S. A.

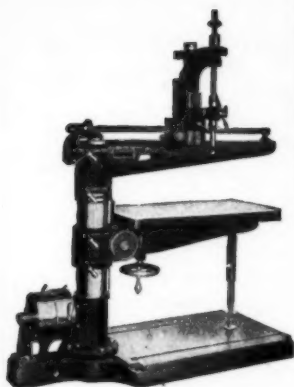
C. W. Burton, Griffiths & Co., London, English Agents.
Burton Fils, Paris, French Agents. 40 Domestic Agencies.

¶ "Got a 3-13/32" mandrel?" is an unknown question in any shop having in its tool room a single set of *nine* NICHOLSON EXPANDING MANDRELS. ¶ For any shop having one set of NICHOLSONS has a 3-13/32", and every other size between 3/4" and 7". ¶ The fit is perfect, no matter what the hole—whether round or square. ¶ The fit is instant, no matter what the hole, because the jaws adjust themselves automatically, and hold tight as soon as they reach the proper size. ¶ There's just one way to know this mandrel—use it! Borrow one from us, without obligation, for 30 days. Use it on your hardest work, and if you are not satisfied send it back at our expense. ¶ Merely send a postal with your name and address, and the approximate size mandrel you wish to test. ¶ Our large booklet on the advantages of Nicholson Expanding Mandrels, under many different shop conditions now ready. Send for it.

W. H. NICHOLSON & CO.
117 Oregon Street, Wilkes-Barre, Pa.



Nicholson Expanding Mandrel



*Cost
Records
Prove
Their
Economy*

T. & F. Sensitive Radials

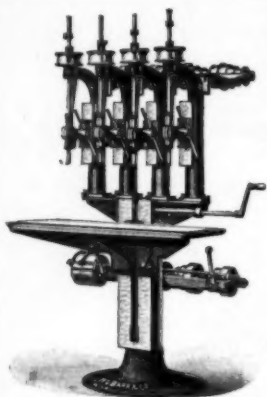
Are Saving Money for Manufacturers

Many of them have doubled and even trebled their outputs by installing our 3-foot Radials. They have all the desirable features of our standard line, and have no equal anywhere for drilling holes up to $\frac{3}{4}$ -in. in big, unwieldy pieces.

So far as we know this T. & F. is the only drilling machine that may be equipped with more than one head and spindle, each designed for the particular kind of work that it has to do. This enables the operator to save much time on many operations.

Asking for our interesting production records and cost comparisons does not obligate you in any way

The Taylor & Fenn Company
Hartford, Conn.



The Well Known
H. G. Barr Line
 of
Sensitive Drills

with one to six
 spindles.

*Send for catalog
 if interested*

Francis Reed Co.

43 Hammond St.
 Worcester, Mass.

Rearwin Die Filing Machines



*Increases the Output
 Decreases the Cost*

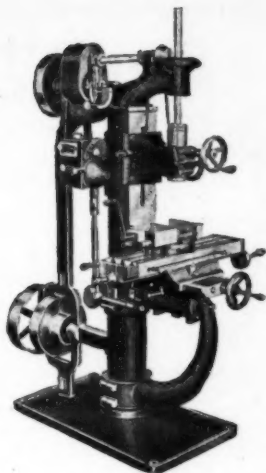
Does both large and small work. Any standard file 4" to 12" in length can be used. Stroke adjusted from 1" to 7". File releases on up-stroke. Shaft or motor drive gives rapid production and a uniform degree of clearance in your dies or other work where straight filing is required. Hack saws can be used for making templates.

Adjustable Speed Stroke & Table

*Descriptive circulars and
 prices sent on request.*

W. D. Rearwin

341 Mill Ave., Grand Rapids, Mich.



Convenience Multiplied By 3

Makes Hard Machining Easy

Knight Milling and Drilling Machines *have to be* exceptionally handy and convenient to save from 20 to 50% of time in tool room and experimental department. We make them in three sizes, which weigh respectively 600, 1200 and 2300 lbs.

Our Light Duplex Miller

is especially adapted to the accurate and economical milling of such work as frames of typewriters, adding machines, cash registers, etc., where lugs occur in pairs and are to be finished on opposite sides of the casting. It's a great cost reducer wherever it can be used.

Illustrated circulars on request

W. B. Knight Machinery Co.
St. Louis, Mo.



Burke Quality Excels on Fine Points

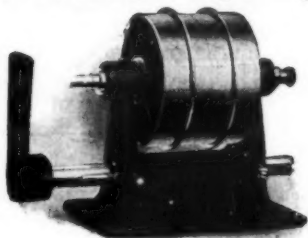
Machines of
Burke Quality
are never built
with any name
cast on the
frame but our
own—

**BURKE
CONNEAUT
U. S. A.**

For Sale: $\frac{3}{8}$ " x 3" x 30" C. R. Steel

**This Tapping Machine
Now Has Greater Capacity**

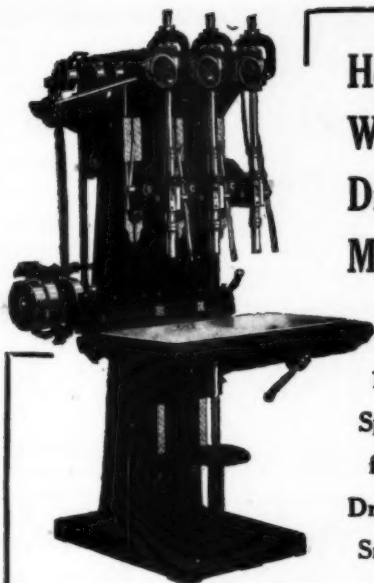
**Burke's
No. "D" Taps
 $\frac{5}{8}$ " Holes
in
Horseshoe
Steel**



BUILT throughout with exceptional care, our several sizes give service in proportion. Accurate, rapid and convenient, they give solid satisfaction. No. "D" sells for \$45.

Send for details today

The Burke Machine Tool Co., Conneaut,
Ohio



Henry & Wright Drilling Machines

with
1 to 8
Spindles
for $\frac{3}{4}$ "
Drills and
Smaller

One of Our 252 Varieties

They are increasing production—not theoretically, but actually—in the largest drilling plants of the country, because of their gearless power transmission with frictionless bearings and other Henry & Wright improvements.

And the 252 Varieties afford the widest range of selection, to meet the exact requirements of the user to the best possible advantage.

** Particulars, and our Feed and Speed Chart, Free—Ask for Both*

The Henry & Wright Mfg. Co.
760 Windsor St., Hartford, Conn.

The Old Way



**INVOLVES
DANGER OF
DISTORTION
PITTING
BREAKING
FAILURE
AND LOSS
WHICH
CANNOT BE
AVOIDED
WITH EVEN
THE BEST
EQUIPMENT
AND THE
GREATEST
SKILL IN
MANIPULATION**

Fool Proof Treatment of High

At a Temperature of

The extreme heat—which in—
—that heretofore has been
treating of Tungsten steels, to
subsequent distortion, pitting
when it is most annoying,
considerable loss.

HETZ
Heat Ease

is a scientifically compounded
tested preparation for the
treating of high speed steels
of 1700 Fahr., insuring maximum
toughness while eliminating all cha

**You may prove it at our risk
because we know what**

Put up in 100-pound containers
one and try it for 30 days ac-
tions. If it doesn't do what we
is left at our expense and you

Send us a few high speed tool
We will return them promptly
for treatment. This will show

This is too important to forget; b

Bennett Metal Treating
Elmwood, Conn.

Proof High Speed Steel

ure of 1700 Fahr.
which in itself costs money
s been necessary in the
steels, too often results in
, pitting or bursting just
noying, and always at a

HETZY

Easy

ounded and thoroughly
or the successful heat-
d steels at a temperature
g maximum hardness and
g all chance of costly failure.

t our risk and expense,
ow what it will do

containers only. Send for
days according to direc-
what we say, return what
and you owe us nothing.

speed tools for hardening.
promptly, without charge
will show HETZY results.

get; better write now

reating Company
od, Conn.

The HETZY Way

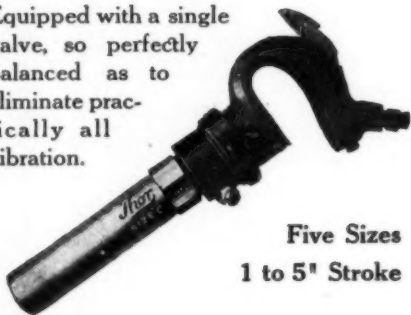
PRODUCES
MAXIMUM
HARDNESS
& TOUGHNESS
WITHOUT
CHANGE IN
SHAPE AND
WITHOUT
DANGER OF
FAILURE
EVEN WHEN
USED BY
OPERATIVES
OF ONLY
ORDINARY
SKILL



Thor

Pneumatic Chipping Hammer

Equipped with a single valve, so perfectly balanced as to eliminate practically all vibration.

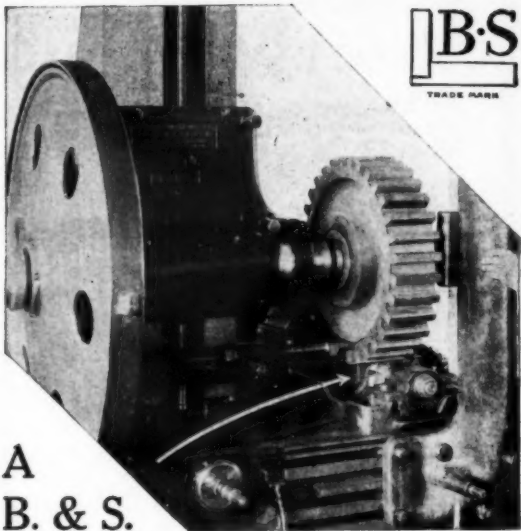


Five Sizes
1 to 5" Stroke

All Thor tools shipped on trial. Write nearest branch for particulars. Circular "W" shows complete line.

One Thor—More Thors
Independent Pneumatic
Tool Company

Chicago New York Pittsburgh Detroit
San Francisco Birmingham Montreal



A
B. & S.

Gear Cutter on the Job

Whether it is a big job, or a small one; a thousand gears for the finest machines, or an odd one rushed through for repairs; whether the aim is the smoothest running gears possible, or the greatest number cut per hour, in any case if it is a Brown & Sharpe Cutter on the job you will find it delivering full value. They are made to fulfill expectations and more.

May we send Catalog No. 26 which lists our entire Cutter line?

Brown & Sharpe Mfg. Co.
Providence, R. I.

Safety First



The "Duplex" Emery Wheel Dresser

is shown disassembled in the above cut. Note that two cotter pins hold the shaft and hood in place. There are no screws or bolts to work loose.

*Sent on trial at our expense
Drop us a card*

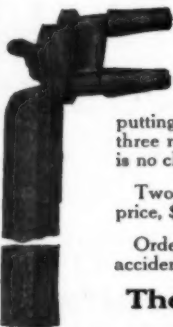
Cleveland Flue Cleaner Mfg. Co.

321 Frankfort Ave., N. W.

Cleveland, Ohio, U. S. A.

Before the Horse is Stolen

Is the Time to Lock the Stable



The time to prevent accidents is before they happen. Our

"Safety First" Belt Stick

makes accidents impossible in putting belts on moving pulleys. With three rollers, two of them tapered, there is no chance of the hook getting caught.

Two sizes, 1 to 4" and 4 to 6", at one price, \$1.25 each or \$12 a dozen.

Order a few on trial *now—before* the accident—then there won't be any.

The Ready Tool Co.
Bridgeport, Conn.

Van Dorn

PORTABLE

ELECTRIC DRILLS, REAMERS & GRINDERS

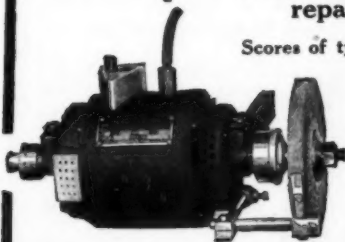


For Hard Service

All parts oversize, Annular Ball Bearings wherever advisable, motor cooled by means of fan on armature shaft, special make and break switch that reduces risk of fused contacts to the very minimum, all combine to make Van Dorn products carry more overload than any other electric tools of corresponding size and weight on the market.

They stay out of the repair shop

Scores of types and sizes.



Tell us the nature of your work and we will forward promptly complete information and prices on tools that won't stall on your work.

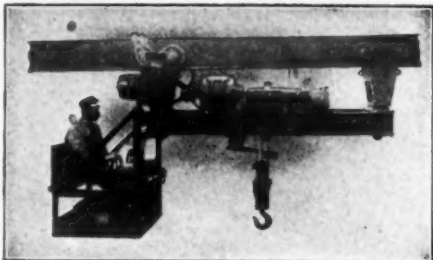
THE VAN DORN ELECTRIC TOOL CO.

GENERAL OFFICES AND WORKS, CLEVELAND, OHIO

New York, N. Y., 30 Church St.
Boston, Mass., 170 Purchase St.
Baltimore, Md., 339 Title Bldg.
Chicago, Ill., 601 Monachnock Bldg.
Pittsburgh, Pa., 701 Empire Bldg.
Cincinnati, O., Second Natl. Bank Bldg.

Atlanta, Ga., 1018 Healy Bldg.
St. Paul, Minn., American Nat'l Bank Bldg.
Kansas City, Mo., 1311-13 Baltimore Av.
Denver, Colo., Ideal Bldg.
San Francisco, Calif., 515 Mission St.
Los Angeles, Calif., 325 Security Bldg.

Mono Rail Hoists and Over Head Track Systems



A 5-ton hoist operated from cab or floor for transferring material from one building to another, unloading cars, general yard work, etc. Mono Rail Hoists and trolleys of all types.

Nothing too large or too small for our careful, prompt attention.

The Euclid Crane & Hoist Company
Euclid, Ohio

Canton Cranes Pay Big Dividends

Save Men—Save Money—Save Time



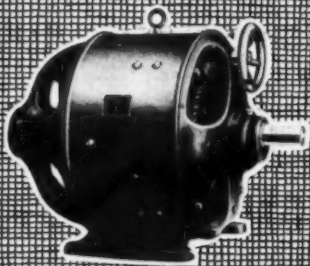
One Canton does the heavy, trying work of from 6 to 10 men in perfect safety.

**"The Handiest Tool
In the Shop"**

pays dividends out of all proportion to its small cost. A choice of several sizes, furnished with double gears when so desired at small expense.

A 30 day trial for the asking

CANTON FOUNDRY & MCHE. CO., Canton, O.



A Speed for Each Job

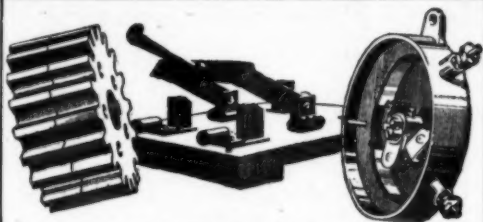
Machines doing miscellaneous work or performing various operations on the same piece should be driven by

Reliance *Adjustable Speed* **Motors**

These motors will give you unlimited running speeds over wide ranges so that it is always possible to get just the right speed to complete each job in the quickest possible time.

Get details in Folder 10 L
(We build constant speed motors.)

Reliance Electric & Engineering Co.
1050 Ivanhoe Road, Cleveland, O.



VUL-COT FIBRE makes noiseless and practical-ly wearless gears. ¶ It is used extensively for small bushings and bearings—it requires hardly any lubrication. ¶ It makes current-proof conduits for machine tool wiring; current proof insulation for operating switches, etc. ¶ The friction drives of most machine tools have VUL-COT Fibre friction discs or wheels. ¶ We will gladly assist engineers in their researches involving the possible use of vulcanized fibre.

AMERICAN VULCANIZED FIBRE COMPANY
560-570 Equitable Building, Wilmington, Delaware
Largest Manufacturer in the World of Vulcanized Fibre.



Quick Action

This is what we call this new Machine Handle. Attached to any power tool, especially the heavier types; adjustments are made with more speed and less effort.

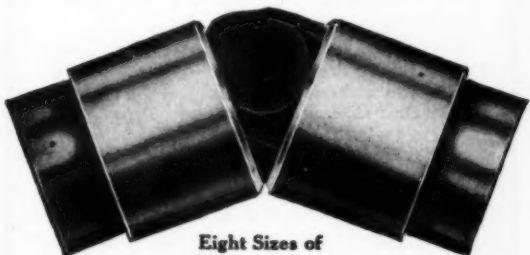
All kinds of standard and special Handles from steel for power tools and similar purposes.

Send for Catalogue and prices

The Cincinnati Ball Crank Co.
Oakley, Cincinnati, Ohio

G. & P. Universal Joints

For use on adjustable Gang Drills and Wood Boring Machines; on the moving feed shafts of Milling, Grinding, Boring, and various Special Machines; for driving self-aligning Boring Bars; for operating mechanisms for Revolving Ventilating Funnels on Steamships; for adjusting mechanisms for Gun Carriages; on Printing Presses and other Paper Handling Machinery; for connecting engine shaft to propeller shaft on Motor Boats, and for all similar purposes.



Eight Sizes of

Strong, Positive Angular Drives

From $\frac{3}{4}$ inch to $2\frac{1}{2}$ inches, varying in size by quarters of an inch, with solid blank ends

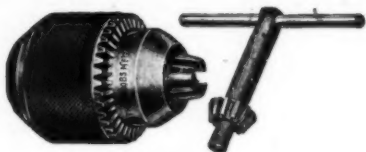
They transmit a thrust or tension without play or looseness in any direction. All wearing parts are thoroughly case-hardened. They have no sharp edges to wear other parts. They have no screws or small parts to get loose. They have given many years of satisfactory service in this country and abroad, under all conditions.

Tell us size of shafts to be connected, r. p. m. of joint, the angle, the h. p. to be transmitted, and tool or machine you wish to drive, and let us recommend a Universal Joint for your purpose.

Let US worry over your requirements

GRAY & PRIOR MACHINE CO., Hartford, Conn.

Our Customers Know Why!



Patented Sept. 16, 1902

Why have our first customers, without solicitation, continuously and increasingly purchased *Jacobs Improved Drill Chucks* ?

Our illustrated catalog "H" sent upon request.

The Jacobs Manufacturing Co.
Hartford, Conn., U. S. A.

SWEETLAND SERVICE!

The Perfect Chuck Service



The Hoggson & Pettis Mfg. Co.
New Haven, Conn., U. S. A.

The New Britain Drill Chuck

when furnished with taper hole for separate arbor has a flat back as shown in cut. This makes a shorter chuck than when made with



a hub, and is a decided advantage. This change is made without sacrificing strength or holding power.

When Chuck is to be used with an arbor having any size of Morse Taper, we advise the purchase of chuck having arbor attached as

shown in previous advertisements, but when used with arbors having other tapers, or with straight arbors, this type of chuck is advised.

*Send for circular telling more about
this powerful grip chuck*

Union Manufacturing Co.

New York Office
26 Cortlandt St.

New Britain, Conn.

Makers of a Complete Line of Chucks



We manufacture a great variety of
Lathe Chucks, Drill Chucks, Centering Chucks
Also
Portable Jaws for Lathe face plates and Machine tables.

Let us send you our Catalog

The Cushman Chuck Co.
Established 1862 **Hartford, Conn.**

We Can Sell Your Machines **At Home and Abroad**

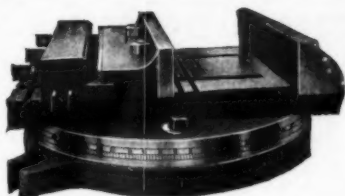
We wish to get in touch with manufacturers of all kinds of *good* machinery who desire selling agents, either domestic or export. If you produce machinery which has real merit, an investigation of what our organization can offer you in experienced and effective service is worth while. *Write us.*

Hitchcock, Stone & Co.
Manufacturers' Agents

10 East 43rd Street, New York City

Special Machinery for Munitions and Gun Stocks.

We have Five Latest Model Gun Stock Lathes which we can offer for Immediate Delivery.



With
Round
Swivel
Base

Immediate Delivery of Skinner Planer Chucks With Round or Square Base

We have in stock a full assortment of sizes, with either round or square base, and can make prompt delivery.

Skinner Planer Chucks are the heaviest made, designed for use in railroad shops, steel mills, etc. They will not spring under the severest service. The Round Swivel Base Chucks are accurately graduated in degrees.

Skinner Lathe Chucks, Drill Chucks, Drill Press Vises and Face Plate Jaws are also standard tools of unusual merit.

Write for the Catalog and Price List

The Skinner Chuck Co.

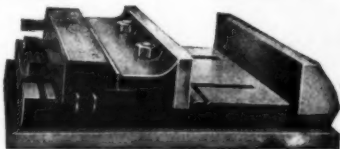
San Francisco Office:
Rialto Building.

London Office:
149 Queen Victoria St.

Factory and Main Office:
New Britain, Conn.

New York Office:
94 Reade Street

With
Square
Base



Have You an Oil Well on Tap?

If Not, You Need a "Curtis"



No. 400 — Capacity: 2 Bushels

This Oil Extractor enables you to use that valuable oil over and over again, thereby lowering your oil bills 'way down.

It takes all the oil from your chips, shavings and waste, quickly and with a minimum amount of power. The cost of this ball bearing machine is returned to you in a short time. It is easy to run and to keep running.

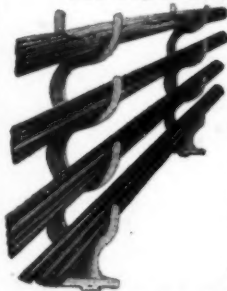
Your Choice of 3 Sizes

To buy now means to save now—why postpone?

A. B. Curtis Co., P. O. Box 44,
Worcester, Mass.

"The Handiest Racks"

For Pipe, Shafting and Bars



We made them first for our own use—after an accident—enabling us to store our bar stock neatly and out of the way in a fourth the space, where we could keep it properly assorted and counted, and where we could get at it easily and quickly—a saving in every way.

When we found they were so good, we decided to make them in quantities for the trade at a lower price than our first ones cost us, although they were well worth it at that.

However, as foundry costs are advancing, you can buy cheaper now than later. So better order yours now.

Wm. S. Yohe Supply Co.

314 Lincoln Way, West,

Canton, Ohio

Contract Work Wanted

This department is exclusively for those desiring machine, press or die work on contract. Advertisements must be set in uniform style, as shown, and without other display, or any variation in arrangement or in kind or size of type. The heading must express, as nearly as possible, the particular sort of work wanted, in order that any facilities offered may be easily found. Rates: one-eighth page, three months, \$12; one year, \$40.

Stampings by Contract

We have complete facilities for stamping, drawing and forming of sheet metal. Our presses are best suited for medium and large size stampings. We are equipped for baked enameling, spot and acetylene welding. Send us sample, sketch or blue-print for estimate. **The New Britain Machine Co., New Britain, Conn.**

Dies, Tools—General Machine Work

We are equipped to render satisfactory service on all kinds of general machine work. No job too big or too difficult. Established 1876. **Chicago Die & Machine Works, 415 N. Carpenter St., Chicago, Ill.**

Brass Castings—Sand Blasted

Castings of every description made in brass, bronze, copper, aluminum and white metals, ranging in weight from 1 ounce to 1,000 pounds each. Specially equipped with power moulding machines for the handling of split, gated and plate patterns. All castings sand blasted. **Faunt Bros., 1555 Fulton St., Chicago, Ill.**

Metal Stampings—Screw Machine Products

Give us the amount of pieces required of each style. The larger the quantities the closer we can figure. We require absolutely accurate work in our own manufacturing departments, and our rigid inspection service is at your command. **Harvard Electric Co., 527 W. Van Buren St., Chicago, Ill.**

Screw Machine Products—Brass Castings

Right prices. Prompt deliveries. High-grade work. Send us samples or blue-prints for quotations. **Hill Pump Valve Co., Archer Avenue, Canal & 23rd Sts., Chicago, Ill.**

Special Machinery and Punch Press Work

Dies, tools and general machine work. Manufacturers of metal specialties. We are equipped to handle your requirements to your best advantage. **Illinois Die & Tool Works, 162 N. Desplaines St., Chicago, Ill.**

Brass, Bronze and Aluminum Castings

Castings of every description made in brass, bronze or aluminum. Brass finishing, screw machine and punch press products. Polishing and electro-plating. We are fully equipped to furnish complete brass and metal parts of every description. **Kelly Brass Works, 226-232 W. Ontario St., Chicago, Ill.**

CONTRACT WORK WANTED

Inventions Perfected

Years of experience in this work enable me to render you a satisfactory service. Special and automatic machinery a specialty. **R. D. King, Consulting Engineer, 519 Moradnock Bldg., Chicago, Ill.**

Brass Finishing—Metal Patterns—Screw Mach. Products

Special brass work of every description, metal patterns and screw machine products. With a well-lighted shop, good tools and good mechanics, we believe we can satisfy you with our service. **B. W. Pokorney & Co., 132-134 S. Clinton St., Chicago, Ill.**

Punch and Die Work—Experimental and Model Work Patented Articles Manufactured on Contract

We are well equipped to design and make special machines and tools; to handle experimental and model work, also punch and die work, and to manufacture patented articles on contract. Your inquiry is solicited. **Pollard Engineering Co., 165-169 N. Jefferson St., Chicago, Ill.**

Sheet Metal Stamping, Dies and Tools

We solicit your inquiry for sheet metal stamping. Manufacturing a specialty. **Walter L. Schultz, 29 S. Clinton St., Chicago, Ill.**

General Machine Work—Dies, Tools, Models Punch Press and Screw Machine Work

We are equipped to render the best of service in dies, tools, models, punch press and screw machine work. Specialties for bicycles and motorcycles. **L. Wilson Novelty Works, 222 S. Clinton St., Chicago, Ill.**

Tools, Dies, Jigs, Fixtures and General Machinery

We make prompt deliveries and our work is guaranteed. **McHugh Bros., 111 S. Water St., Rockford, Ill. (Successors to Winnebago Machine & Tool Co.).**

Jigs, Dies, Tools—Stampings and Electro-Plating

Rockford Metal Specialty Co., Rockford, Ill.

Accurate Machine Tool Work

We have a very complete outfit of modern machinery and a force of highly skilled workmen which we could make available part of the time for outside work. We would like to get in touch with reliable concerns desiring to contract for accurate machine tool work. **Campbell Electric Company, Lynn, Mass.**

CONTRACT WORK WANTED

Milling Machine, Screw Machine, Drill Press or Lathe Work

We can handle a large amount of small, accurate work of this character. Send samples or blue prints and we will gladly submit prices. **Bourke Machine Company, 224 Twenty-First St., Detroit, Mich.**

High Grade Machine Manufacturing

We are equipped to manufacture high grade specialties and intricate machines, such as typewriters, adding machines, etc. Can improve a defective design, producing a machine that will work and sell. We especially desire problems of this kind. Large facilities for small stampings. **Grand Rapids Brass Co., 66-90 Scribner Av., Grand Rapids, Mich.**

Tool and Die Work

Every kind, for which we have the machinery and skilled labor to produce results. We are equipped also for special machine work. Our particular specialty is high grade service. Can you use that kind? **Manhattan Brass Works, Grand Rapids, Mich.**

We'll Make It—Your Metal or Wood Specialty

We have unusual facilities for producing specialties in both metal and wood. Experimental and model work, pattern making. Jigs, dies, sheet metal work. Write for details. **Gas Engine & Power Co. and Charles L. Seabury & Co., Consolidated, Morris Heights, New York City.**

Sheet Metal Stamping and Manufacturing

We solicit your inquiries for light sheet metal stamping and manufacturing of specialties. **O. D. Johnson Stamping Works, Batavia, N. Y.**

Tools—Dies—Jigs—General Machine Work

Screw machine products. Efficient service and prompt deliveries. Send us your blueprints for quotations. **Commercial Motor Car Co., Inc., Owego, Tioga County, N. Y.**

High-Grade Castings—Machine Building

High-grade castings in iron, brass, bronze and aluminum for machine shops and manufacturers. Well equipped machine and pattern shops. Machine work and machine building our specialty. Inquiries solicited. **Briggs-Shaffner Co., Shallowford St., Winston-Salem, N. C.**

General Machine Work—Dies, Tools—Special Machinery

We are equipped to build machines of every description—sheet metal punches and dies—tools, models and jigs—long brake dies. Our object is high grade service. Send b. p. for estimate. **Canton Machine Shop, 320 Rex Ave., Canton, Ohio.**

SECOND-HAND MACHINERY

FOR SALE BY

Brownell Machinery Co.,

Boring and turning mill, 30" Rogers, turret head.
 Drill, sensitive, 6-spindle Reed.
 Drills, 24" Prentice, (4).
 Engine lathe, 12"x5' Davis.
 Eng. lathe, 14"x8' Reed, with taper.
 Engine lathe, 16"x8' Perkins.
 Engine lathe, 18"x8' Star Tool Co.
 Engine lathe, 20"x12' Perkins.
 Gear cutters, No. 3 B. & S. auto., (3).
 Gear cutters, No. 13 B. & S. heavy automatic, (3).
 Gear cutter, No. 14 B. & S. auto.

11-13 Eddy St., Providence, R. I.

Gear generators, 12" Gleason, single tool, (2).
 Gear generator, 48" Gleason, single tool, for spurs, bevels, & internals.
 Generator, 15" Gleason, double tool.
 Milling machine, vert., No. 3 Becker.
 Planer, 24"x24"x5' Wheeler.
 Planer, 24"x24"x6' Whitcomb.
 Planer, 24"x24"x8' Pease.
 Shaper, crank, 15" Kelly, new.
 Shaper, crank, 16" Ohio, new.
 Shaper, tool room, 15" Potter & Johnston, new.

FOR SALE BY

Krantz Mfg. Co., Inc.,

Buffing stands, (2).
 Coupling, right angle drive, 25 h. p.
 Almond, with 20"x9" pulley.
 Drill presses, 20" Barnes, single vertical, back geared, (2).
 Drill press, 18" Snyder, single vertical, back geared.
 Drill presses, 12" Burnham, single vertical, (6).
 Drill press, radial, 36" Bickford.
 Grinder, disc, 48" Besly Diamond horizontal.
 Punch press, power multiple, 4' Ohl, gear reduction 10 to 1, stroke 14".
 Sander, drum, 30" Clements.

160 Seventh St., Brooklyn, N. Y.

Punch press, large power multiple, Leffler, gear reduction 10 to 1, stroke 2", die bed 6'6".
 Shears, angle hand lever, 2".
 Shears, hand lever, 6" Braun.
 Shears, hand lever, 9" Braun.
 Sheet metal straightener, No. 0 Cincinnati, 4', 8 roll.
 Screw machine, No. 0 Hartford auto.
 Steam pump, 4 1/2"x4 1/2" Worthington duplex.
 Steam trap, No. 3 Nason.
 Steam traps, No. 5 Nason, (2).
 Wood-working speed lathe, 16" Fay & Scott.

FOR SALE BY

L. F. Seyfert's Sons, Inc.,

437 N. 3rd St., Philadelphia, Pa.

LATHES.

32"x17' Niles.
 26"x12' Davis.
 26"x12' Draper.
 24"x14' Johnson, (2).
 23"x12' Blaisdell.
 22"x10' American, q. c. g.
 22"x10' Hamilton.
 18"x10' South Bend.
 18"x10' South Bend, gap.
 16"x8' Bradford, (2).

16"x6' South Bend.
 16"x6' Bradford.
 15"x6' South Bend, (2).
 14"x6' Bradford, (2).
 14"x6' Lodge & Shipley, q. c. g.
 14"x6' Monarch.
 14"x6' Le Blond, q. c. g.
 13"x6' South Bend.
 13"x6' South Bend, (3).

DRILLING MACHINES.

26" Barnes, (4).
 21" Rockford.
 20" Champion, (2).

20" Barnes, (4).
 20" Aurora, (2).
 17" Rockford.

MISCELLANEOUS.

Bending roll, 10' Hilles & Jones.
 Bending roll, No. 2 Hilles & Jones.
 Cold saw, No. 2 comb. Newton.
 Miller, No. 2 Owens universal.
 Miller, 24"x24"x6' Ingersol, slab.
 Planer, 22"x22"x5' Whitcomb.

Press, 350-ton Hoe hydraulic.
 Press or brake, 10' Ohl.
 Press, No. 3 Henderson, flywheel.
 Press, No. 2 Bliss, flywheel.
 Punch, No. 4 Hilles & Jones.
 Punch, No. 1 Hilles & Jones.

SPECIAL.

Ames locomotive boilers, 125 lbs. pressure, 50-60-70-80-100 h. p.; in fine condition.

SECOND-HAND MACHINERY

FOR SALE BY

Joseph Beal & Co., 453-457 Atlantic Ave., Boston, Mass.

LATHES

12"x6' Watson, c. r., chuck, etc. 15"x6' Porter, c. r., chuck, etc.
14"x6' Fay & Scott, c. r., chuck, etc. 18"x6' New Haven, c. r., chuck, etc.
14"x8' American, c. r., chuck, etc. 20"x12' LeBlond, c. r., chuck, etc.

DRILLING MACHINES.

24" 30" & 34" Aurora, b. g., s. h., p. f. Multiple spindle, Western, 8 spindles.
36" Snyder, b. g., s. h., p. f.

PLANERS.

28"x28" New Haven, 1 head. 22"x22"x6' Flather, 1 head.

MISCELLANEOUS.

Auto screw mche., Acme, 9-16, 4 sp. Grinder, internal duplex, Bath No. 24

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

14"x6' Blaisdell, c. r. 17"x8' Perkins, c. r.
14"x6' Reed, r. & f. rest, (2). 18"x6' Fitchburg, c. r.
14"x6' Blaisdell, p. r. 20"x6' New Haven, c. r.
14"x6' Hendey, r. & f. rest. 28"x12' Lodge & Davis, c. r.
16"x6' Lathe & Morse, r. & f. rest. 28"x8' New Haven, c. r.

FOX LATHES.

14"x6', sq. arbor, s-o. tailstock, (2). 20" American, universal turret.

TURRET LATHES.

18" Lodge & D., g. f. hd., auto chuck. 14" Lodge & Davis, plain head.
No. 7 Bardons & Oliver, g. f. hd., No. 4 W. & S., g. f. hd., p. b.
with vert. forming attachment. 12" Warner & Swasey, p. h.

MILLING MACHINES.

No. 8 Brainard, Lincoln type. No. 12 Brown & Sharpe, plain.
No. 15 Garvin.

UPRIGHT DRILLS.

20", w. & l. fd., s. b., (4). 20" b. g. & p. f., s. b., (4).
Sensitive drills, (6). 24" b. g., p. f., sliding hd.

MULTIPLE DRILLS.

3, 4 and 6-spindle sensitive. Detroit 5-spdl. horiz., semi-auto.

GEAR CUTTERS.

20" Brainard semi-automatic. 36" Gould & Eberhardt, auto. spur.

PLANERS.

24"x24"x3' Pond, spur. 20"x20"x3', spur.

PUNCH PRESSES.

No. 18 Bliss pl. inclinable, (3). No. 22 foot power presses, (3).

BORING MILLS.

60" Industrial, sgle. hd., vertical. 36" Barrett, horizontal, with 5" bar.

GRINDERS.

Warner & Swasey cock grinders. 14" & 20" wet grinders, (5).
No. 60 Heald, cylinder.

SHAPERS.

16" Fitchburg, traveling head. 15" Walcott, geared.
20" Hendey, friction. 20" Walcott, friction.

SCREW MACHINES.

14" Cleveland automatic, 3-hole. 2" Hartford automatic, 5-hole.
2" Cleveland automatic, 5-hole.

MISCELLANEOUS.

Bending roll, 10x20" Bertsch, heavy, triple geared.
Bolt cutter, 14" Acme, single head.
Bolt cutter, 14" Wells, single head.
Cold saws, 12" Burke, (2).
Grinder, 16x50" Springfield, planer type.
Keyseater, Morton, draw stroke.
Pipe machine, 2" Jarecki.
Pipe machine, 4" Williams.
Pipe machine, 6" Curtis & Curtis.
Profiler, No. 2 Garvin, 2 spindle, Wesson drive.
Pulley lathe, 36" Stevens, with boring attachment.
Radial, 5' arm Bickford, speed box, single pulley drive.
Radial, 6' arm Cleveland P. & S. Works, wall type.
Saw, No. 20 Lea-Simplex, new.

SECOND-HAND MACHINERY

FOR SALE BY

W. L. Perkins, Jr.,

30 Church St., New York

LATHES.

24"x10' Putnam, c. r., cross feed. 32"x10' Putnam, c. r., cross feed.
26"x14' Putnam, c. r., cross feed. 70" Sellers d. h. wheel lathe.
28"x14' Putnam, c. r., cross feed. 80" Bement d. h. wheel lathe.

PLANERS.

30"x30"x10' Chandlers, 2 heads. 36"x36x10' Woodward & P., 2 hds.
32"x32"x8' Pond, 2 heads. 60"x60"x14' Sellers, 2 heads.

RADIAL DRILLS.

8' Dreses, tapping. 7' Haush, tapping.
6' Bickford, tapping. 8' Pond, tapping.

FOR SALE BY

Broadway Machinery Co.,

236-238 Broadway, Cincinnati, Ohio

LATHES.

10"x 4' Shepard, h. s., c. r. 24"x16' Blaisdell, h. s., c. r.
13"x 6' Sebastian, h. s., c. r. 26"x16' Niles, h. s., c. r.
16"x 8' Reed, h. s., c. r. 28"x20' New Haven, comp. rest.
17"x 6' Porter, h. s., c. r. 30"x16' Harris, old type.
20"x10' Silk-Anderson, h. s., c. r. 50"x10' engine lathe.
21"x10' Lodge-Davis, h. s., c. r. 68"x36' Niles, old type, c. r.

SHAPERS AND PLANERS.

16" Smith & Mills, plain crank. 30"x30"x 8' Fitchburg, 1 head.
21" Juengst, b. g. crank. 36"x36"x10' Pond type, 1 head.
24" Steptoe, geared. 48"x48"x38' old type, 1 head.

MISCELLANEOUS.

Bolt cutter, 14" Economic. Punch, No. 6 Long & Allstatter.
Bolt cutter, 2" Acme. Punch and shear, No. 8 L. & A.
Miller, vertical, No. 9 Bement. Shear, Greenleaf, 25" throat.
Punch, geared, No. 3 L. & A. Slotter, 20" Niles.

FOR SALE BY

Brown-McDonald Machinery Co.,

906-908-910 North Market Street, - - - St. Louis, Mo.

LATHES.

9"x3' 3" Barnes, foot and belt power. 15"x8' South Bend, (new).
13"x6' Sebastian, h. s., p. r. 17"x8' Fitchburg, h. s., p. r.
13"x6' South Bend, (new). 18"x8' South bend, (new).
14"x5' Putnam, s. s., p. r. Fox brass lathes, (4).

DRILLING MACHINES.

Barnes, 1/2" capacity, single spindle. New 20" Champion, w. & l., (3).
Reed 4-spindle No. 33, 1/2" capacity. New 24" Aurora, s. h., back geared
New 20" Champion, w. & l., back and power cross feed.
geared and power feed. 36" s. h., back geared, p. f.

PLANERS.

26"x26"x7' Whitcomb. 30"x30"x9' New Haven.

COMPRESSORS.

8x8 Star, sgl. cyl., dbl. a., belted. 950 cu. ft., Ingersoll, steam.
10x10 Star, with 10x10 vert. engine. 20x20x13 1/2" Norwalk, straight line.

MISCELLANEOUS.

Bolt cutter, sgl. hd., 14" National. Hammer, helve, Rochester, size B.
Cold saw, Q. & C. Pipe machine, 4" Bignall & Keeler.
Friction saw, Ryerson, motor driven. Rolls, 8' Hilles & Jones, cap. 1/2".
Gear cutter, No. 11 Dwight Slate. Shaper, 14" Steptoe, crank.
Gear cutter grinder, No. 1 Gould & Shears, square, 30" P. S. W.
Eberhardt. Shears, square, 37" Bertsch, 15" gap.
Hack saw, Atkins Kwik Kut. Slab miller, 48" Cincinnati.
Hammer, helve, 60 lb. Knowlton. Steel brakes, 4' and 8'.

SECOND-HAND MACHINERY

FOR SALE BY

Badger-Packard Mch'y. Co., 72-74-76 W. Water St., Milwaukee, Wis.

DRILLING MACHINES.

14" Mechanics. Graham sensitive, $\frac{1}{2}$ " capacity.
14" Woodward & Rogers sensitive. 3-sp. Henry & Wright, ball bear'g(2).
20" Barnes, geared.

LATHES.

9"x4' Star No. 10E, practically new. 18"x8' Blaisdell, compound rest.
14"x8' Flather, quick change. No. 324 Toledo spinning lathe.

MISCELLANEOUS.

Air compressor, 3 $\frac{1}{2}$ x4 $\frac{1}{2}$, type AO Gifford. Grinder, disc, No. 6 Diamond, Gorton type.
Air compressor, 10x10 Franklin, complete with tanks and fittings. Grinders, knife, 30" Globe.
Buffing lathe, No. 10 Hanson-Van Winkle. Grinder, water, 20" Diamond No. 6 $\frac{1}{2}$.
Grinder, disc, No. 8 Besly. Hack saw, No. 1 Racine high speed.
Punch, bench, No. 21 S. M. & W.

FOR SALE BY

Niles-Bement-Pond Company, 111 Broadway, New York.
Located at Chicago, Boston and New York.

LATHES.

12"x 5' speed lathe. 40"x16' Bement, c. r., old style.
16"x8' VonWyck, q. c.

AUTOMATIC SCREW MACHINES.

8" Acme old style 4-sp. automatic. 8" Spencer single turret, auto.

BORING AND DRILLING MACHINES.

36" Brown & Sharpe turret borer. 3" spindle Pond horizontal boring and drilling machine, 220 v. motor.
3 $\frac{1}{2}$ " spindle Niles horizontal boring and drilling machine.

SHAPERS.

10" Miles old-style shaper. 12" Bement old-style shaper.

PLANERS.

22"x22"x 6' Harrington hd. planer. 30"x30"x11' Niles, 1 head.
24"x24"x6' Bertram. 36"x36"x12' Bertram, 1 head.
26"x26"x 7' Niles, 1 head. 42"x42"x20' Miles, 2 heads.
26"x23"x16' Miles, 2 heads. 48"x48"x20' Sellers, 2 heads.
30"x30"x8' Bertram, 1 head.

DRILLING MACHINES.

13" 1 spindle sensitive, 110 v. motor.
14" 3 spindle Henry & Wright.
17" 4 spindle gang, Jones & Lamson.
30" & 36" Gould & Eberhardt, sliding head.
No. 14 Pratt & Whitney multiple, 1" capacity.
No. 10 Pratt & Whitney multiple, 1 $\frac{1}{2}$ " capacity, 10 spindles.
No. 1 Pawling & H. horizontal, belt drive.
Dallet and Prentice portable drills.

RADIALS.

2 $\frac{1}{2}$ ' Grant, semi-radial. 5' Niles, plain.
4' Barr, old-style. 6' Niles, semi-universal.

RAILROAD MACHINERY.

Bement double axle lathe. Bement car wheel lathe.
Niles double axle lathe.

BOLT CUTTERS.

1 $\frac{1}{2}$ " Landis. 4" Acme.
2 $\frac{1}{2}$ " National.

GRINDERS.

12x96" Springfield. 18" Gorton disc grinder.
Automatic grinder, for saw blades. 3' P. & W. vertical.

MISCELLANEOUS.

Cut-off machine, 4 $\frac{1}{2}$ " Starr. Motor, 80 h. p., 220 v., d. c., North-
Grinder, No. 14, 26" G Besly, disc. ern, 575 r. p. m.
Grindstone, 34" iron frame. Press, No. 5 Greenerd, arbor.
Pipe machine, 8" Cox. Rolls, 5"x8' hand power.

SECOND-HAND MACHINERY

FOR SALE BY

Clark Machinery Co.,

1302 Ontario Ave., Cleveland, O.

Blower, No. 1 Root, positive pressure
Boring mill, Barret horiz., 4 1/2" bar.
Compressor, 8x8 Ingersol-Rand.
Drill press, 4-sp., Henry & W., b. b.
Drills, 4 spindle, Prentice Bros.
Grinder, disc, No. 8 Besly.
Generator, 30 k. w. Westinghouse.
Generator, 15 k. w. Lincoln.
Keyseater, No. 0 Mitts & Merrill.
Lathe, 28"x14" Pond. c. r.
Lathe, 38"x22" Fifield, triple geared,
compound rest.
Lathe, double head key lathe.
Motor, 30 h. p. Westinghouse.
Motor, 35 h. p. Allis Chalmers.

Miller, Lincoln, table 46x7 1/2.
Miller, double end valve.
Miller, vertical, table 22"x5 1/2.
Magnetic separator, No. 1 Ding.
Planer, 22"x22"x4 1/2" Putnam, 1 hd.
Planer, 40"x40"x8" Pond, heavy, 1 hd.
Radial drill, 30" Gang plain.
Radial drill, 6" Dreses universal.
Screw machine, 1 1/2" Bardons & O.
Screw machine, 2 1/2" Cleveland auto.
Screw slotters, automatic, (2).
Turret lathe, 12" Warner & Swasey.
Turret lathe, 14" universal, b. g.
Turret lathe, 16" universal, b. g.
Turret lathe, 20" heavy, b. g.

FOR SALE BY

E. L. Esley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.

GRINDERS.

18" No. 7 Besly, double disc.
24" Leland-F., double wet tool, (2).
26" No. 1 Diamond automatic, face.

1-sp. Davis & Egan cock grinder.
6-sp. Milwaukee cock grinder.

SCREW MACHINES.

1" Cleveland automatics, (2).
8" Cleveland automatics, (2).

1 1/2" No. 2 B. & S. semi auto.
1 1/2" Dreses, hand, f. g. hd.

MISCELLANEOUS.

Blowers, various sizes, (6).
Borer, cylinder, Moline 2 spindle.
Bolt cutter, 1 1/2" Acme, double head.
Brake, 8" Keene, hand power.
Drill press, 32" Hoefler, b. g. & p. f.
Forming roll, power, 93" Bertsch.
Gear cutter, 48" Brainerd, spur.
Keyseater, No. 1 Knowles horiz.
Miller, 18x6x15 No. 0 Owen.
Millers, valve, for brass, (2).
Oil separator, No. 1 American.

Pipe machine, 2" No. 2 Bignall & K.
Planer, 48"x48"x14" Pond, 1 head.
Planer, 24"x24"x6" Pond.
Planer, 24"x24"x8" Pond.
Profiler, No. 3 H. Becker-B.
Pulley lathe, 60" Stevens.
Sprocket turning and boring machine combined, Baker Bros.
Sprue cutter, 10" Adt. power.
Welder, for boiler flues, Hartz.

FOR SALE BY

Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.

LATHES.

24"x10" New Haven, c. r.
21"x 8" Wood Light, r. f. r.
18"x 8" Willets, c. r.
16"x 8" Johnson, solid spindle.

16"x 8" Porter, hollow spindle.
14"x 6" Prentice Bros., hol. spindle.
14"x 6" Lodge & Shipley, hol. spdl.
10"x 4" Gould, solid spindle.

MISCELLANEOUS.

Boring mills, turret head vertical, 36" Brown & Sharpe, (2).
Boring and turning mill, 7" Hilles & Jones.
Broaching machine, No. 2 Lapointe.
Cold cutting-off saws, capacities 4", 5" and 6" round.
Grinder, combination disc, No. 14 Gardner.
Hammer, steam drop, 600-lb. Bement, 6 1/2" diam., 30" stroke.
Milling machine, No. 1 Brainard back geared, plain, table 10"x44".
Pipe cutting and threading machines, 4" and 6".
Planer, 40"x40"x12" New Haven, with one head.
Radial drill, 32" Harrington.
Shaper, 18" Cincinnati, double head, with two tables on 12' bed.
Slab miller, 17"x8" Beaman & Smith, with two horizontal spindles.
Stamping and punching presses, a large number of the open back inclinable, straight side and arch types.
Turret lathes, large stock of various sizes and makes.

SECOND-HAND MACHINERY

FOR SALE BY

Strong & Hery Co.,

210 State St., Rochester, N. Y.

In stock for immediate delivery:

LATHES.

14"x6' Hamilton, new, (5).

16"x10' Hendey, q. c., c. r., t. a.

13"x6' Barnes, p. c., c. r.

18"x8' Porter, p. c., c. r.

26"x12' Bridgeford, new.

PUNCH PRESS.

No. 20 Bliss geared punch press.

BORING MILL.

Beaman & Smith, 2 spindle, practically new.

STEAM HAMMER.

1000 lb. Erie double frame steam hammer.

HAND MILLING MACHINES.

No. 2 Garvin new hand milling machines. (2).

MISCELLANEOUS.

Boring mill, 30" Baush, with 4-jaw independent chuck.

Drill press, 36" Cincinnati.

Drill press, 36" Aurora.

Slab miller, 16x48 Bement.

Thread miller, 12x48 Pratt & W.

We also carry in stock for immediate shipment a large assortment of new round, flat, square and hexagon Cold Rolled Steel; Lathe and Drill Chucks; Arbor Presses, Grinders, Electric Motors, Screws, Bolts, Milling Cutters, etc. Advise us concerning your requirements. We have been in the machine tool and supply business for 29 years and are confident that we can serve you to your advantage.

FOR SALE BY

Co-operative Used Machinery Company,

50 Church St., Suite 482,

(Phone Cortlandt 665),

New York

Warehouse, 408 Claremont Ave., Jersey City, N. J.

GRINDERS.

Landis, plain cylindrical, cap. 8x42".....\$1400

Two (2) Landis, plain cylindrical, cap. 7"x36", each.....1250

Brown & Sharpe universal, cap. 12"x30".....1400

Two (2) Brown & Sharpe universal, cap. 12"x36", each.....1400

AUTOMATIC SCREW MACHINES.

Three (3) Gridley single spindle, cap. 2 1/2" motor driven, motors wound for 220 volts, d. c. (2 motors), each.....\$1500

Hartford, 24" capacity.....850

Hartford, 14" capacity.....750

LATHES.

52"x16' Gleason.....\$2500

50"x20' Fifeild.....3000

42"x12 1/2' Wood Light.....1000

30"x15' Lodge & Shipley, taper.....2200

24"x18' Lodge & Shipley, qk. chg. gr., taper, motor driven, with motor, 2150

14"x 6' Hendey, quick change.....800

RADIAL DRILLS.

5' Pond.....\$ 750

5' Baush, heavy duty.....950

3' Baush.....500

HYDRAULIC PRESS.

5000-ton Bethlehem Steel Co.'s hydraulic press.

PLANERS.

72"x72"x11' Fitchburg, 2 heads on rail.....\$1500

Two (2) 36x36 Powell steel foundry, 2 heads, fitted for motor drive.....1250

Gleason, extension housing, 54" wide, 32" high, 16' bed, 2 heads.....1500

HORIZONTAL BORING MILLS.

Espen-Lucas floor boring & facing mch., 4" bar, bores to center of 70".....\$2000

Espen-Lucas boring and facing machine, 4" bar, bores to center of 12'.....2750

In addition to the above we have a very large stock of every kind of Machine Tool and Metal Working Machinery.

SECOND-HAND MACHINERY

FOR SALE BY

F. H. Kappen & Son, Agents, 93 W. Water St., Milwaukee, Wis.

Air compressor, 6x6x7, steam drive.
Blowers, pressure.
Boilers, stationary.
Bolt cutter, 1" Wells.
Cutting-off machines, Burke and Burr.
Drill presses, sensitive.
Engines, steam and gasoline.
File sharpener, American.
Motor, 550 v., d. c., 6 h. p.

Lathes, 10x36" Shepard, 9x4 Star, 24x12 A. & C.
Press, geared, No. 6 Model H. Perkins, 2" stroke.
Press, geared, No. 6½ Model A. Perkins, 4" stroke.
Press, plain, No. 45 Model E. Perkins, 1½" stroke.
Screw mche., ¾" Pratt & W., auto.
Speed lathe, 12x45 Oliver.

FOR SALE BY

**Cyril J. Bath, Mchy. Merchant, 428 Leader News Bldg., Cleveland, O.
Warehouse, 1030 W. Front St.**

Automatic, ½"—1 1-16" Cleveland, good as new.
Automatic, ¾" Cleveland, good as new.
Boring mill, vertical, 30" Bullard.
Centering machine, 2-spindle, 4" Whiton, good as new.
Coring machines, vertical, Bement, capacity up to 10" holes in steel.
Drill, 4-spindle Henry & Wright ball bearing, type K.
Hammer, power, No. 4 Beaudry, good as new.
Lathe, 20"x8" Beaman & Smith, gear feed, turret on shears, hollow spindle, full standard equipment.
Lathe, 54"x36" Hewes & Phillips, triple geared.
Press, dial feed, No. 19½ Bliss, 10-station, 2" stroke.
Press, dial feed, No. 18 Bliss, 12-station, 1" stroke.
Slotter, 54" Hewes & Phillips heavy duty, good.
Turret lathe, 21" Gisholt, with complete equipment.

FOR SALE BY

**McCoy-Brandt Machinery Company
Office and Warehouse 216-218 Penn Ave., Pittsburgh, Pa.**

LATHES.

32"x14" (old) raising blocks.
20"x 8" Porter, p. r., s. s.
18"x 8" L. & S., patent head, q. c.
18"x 8" Fay & Scott, h. s., c. r.

16"x 8" L. & S., q. c., h. s., c. r.
16"x 8" Davis, p. r., h. s.
15"x 8" Johnson, c. r., s. s.
12"x 5" Davis, c. r., h. s.

MISCELLANEOUS.

Bending rolls, 20' long, cap. 1" plate.
Boiler, 40 h. p., ret. tub., 60' stack.
Boring mill, 100" Poole, 2 heads.
Boring mill, 60" Baush, 2 heads.
Bulldozers, Nos. 1, 2, 3, 4 and 12.
Compressor, 10x12x10", Laidlaw.
Crane, 8-ton, 220 v., d. c., 28'10" span.
Crane, 5-ton, 220 v., d. c., 40' span.
Crane, 2-ton, 220 v., d. c., 28' span.
Drill presses, 20" & 31", sliding hd.
Gang punch, 72", cap. ¾", 20,000 lb.
Gas engine, 30 h. p., 2 cyl., vertical.
Generators, 3, 22½, 25, 75 k.w., 110 v.
Generator, 30 k.w., 125v., d.c., st.eng.
Hammer, 75 lb. Modern, power.
Hammer, 300 lb. Johnston & J.
Hoist, d. c., s. d., 8x10" rev.
Keyseater, No. 1 Davis.

Motors, 5, 6, 30 h. p., 110 v., d. c.
Motor, 100 h. p., 220 v., d. c., 790 r.p.m.
Motors, 10 and 55 h. p., 500 v., d. c.
Pipe machines, 2, 4, 6, 8, 10 and 12".
Planer, 24"x24"x8" L. & D. (heavy).
Press, auto. roll feed, 4000 lb., s. s.
Press, equal No. 19 Bliss, o. b. i.
Press, drawing, 28" stroke, 400 ton.
Punch & shear (sgl.) 48" cap. 4x1".
Punch & shear (double) 28 & 12" throats, punch 3½x2", shear 10x2".
Shear, rotary bevel Lennox No. 2.
Shear, squaring, 108", 8 ga., geared.
Shear, alligator, 1½" cap., 9" knife.
Shear, butterfly, 9" knives.
Straightening rolls, No. 0-Hilles & Jones, 56".
Shear, splitting (univ.), cap. ½".

Good condition—Quick shipments.

SECOND-HAND MACHINERY

FOR SALE BY

Enterprise Machinery Co.,

Beader, power.	
Bolt cutter, Acme, 3" to 14" cap.	\$110.
Brake, 8' new, 14 g.	\$315, 10' 414.
Drill, 3-sp. or 6 sp. turret.	50.
Drill, bench, Emco, new.	14.
Drill, 22" Schumacher, w. & l. id.	45.
Grinder, B. & S. #1300, Norton.	500.
Grinder, Landis, 10" x 36" new.	2000.
Grinder, Wells univ., nearly new	200.
Lathe, speed, 11" x 2' centers, c.s.	28.
Lathe, spinning, 26" 48" x 8 - 18"	
gap, 3" screw, slide r., fine cond.	260.
Lathe, 18" x 12" Blaisdell, comp-	
ound rest, 1 1/2" h.s., chuck.	290.
Lathe, spin., 18", tools, fine con.	80.
Miller, Lincoln type, 27" table.	90.
Punch press, horn., fine cond.	110.
Punch & shear, dbl. end. 3/4 in 3/4	
\$200. worth tools.	400.

32-34 S. Clinton St., Chicago, Ill.

Punch pr., o. b. i., No. 3 Emco new	\$260.
Punch press, No. 2, o. b. i.	85.
Punch, shear and rod cutter,	
hand, 1/2" capacity.	40.
Punch, shear and rod cutters,	
power, 3/4" to 1 1/2" new, \$115 to.	290.
Punch press, 7" stroke b. g.	900.
Riveter, Shuster No. 1	75.
Screw machine, 2 1/2" Foster,	
power feed, good condition.	685.
Shaper, 16" trav. (36") head.	175.
Shear, bevel, b. g., 1/2" capacity.	175.
Shear, sq. power, 42", cap. 3/4"	250.
Shear, square, power, 30"	75.
Shear, square, foot, 22"	20.
Shear sq., 36" new, 18 g., \$59, 62"	158.
Welder, elec., Detroit new guar.	250.
Wire crimper, 16 sets wheels.	195.
500 other tools; write us.	

FOR SALE BY

Simmons Machine Co., Inc.,

981-985 Broadway, Albany, N. Y.

New York Office, 902 Singer Building

Machinery for Immediate Delivery.

NEW.

Drill, No. 28 Canedy-Otto sensitive.	\$ 25.
Grinders, cutter-reamer, No. 6 Universal, each.	450.
Lathe, 19x8 Sidney, double back geared, hollow spindle, compound rest,	860.
Lathe, 21x8 Sidney, qck. change gear, double bk. grd., hol. spdl., c. r.,	925.
Lathe, 18x8 Cisco, qck. chg. gear, hol. spdl., comp. rest, pwr. cross fd.,	880.
Lathe, 16x8 South Bend, hollow spindle, comp. rest, power cross feed,	390.
Lathe, 14x6 Neat, qck. chg. gear, dbl. bk. grd., comp. r. pwr. cross fd.,	535.
Lathe, 13x6 South Bend, hl. spindle, compound rest, power cross feed,	285.
Lathe, 11x5 Meyer, hollow spindle, compound rest, power cross feed.	235.
Lathe, No. 5 1/2 Sloan-Chase, bench, c. r., 3 step cone, set collets x16th.	275.
Lathe, 14x6 Monarch, quick change gear, dbl. bk. geared, comp. rest.	650.
Miller, No. 24 Oesterlein, heavy plain	1070.
Shaper, 16" American, h. d., motor drive	850.
Shaper, 25" Smith-Mills, back geared.	900.

USED.

Borer, Putnam wheel borer.	\$ 300.
Cutting-off mch., 3" Hurlbut-K.	300.
Drill, 20" Canedy-Otto, power,	105.
Drill, 24" sliding head.	150.
Drill, 36" semi-univ. radial.	750.
Drill, 36" Cincinnati-Bickford,	
s. p. drive	875.
Gear cutter, 64x16 Gould-E.	1500.
Lathe, 2x24 Jones-L., grd. hd.	1285.
Lathe, 2x24 Jones-L., cone hd.	840.
Lathe, Potter-J. semi-auto. tur.	750.
Lathe, 14x6 L-S., patent head.	950.
Lathe, 20x8 Pond, h.s., c.r., ck.,	550.
Lathe, 21x5 1/2 Barnes, swivel r.	200.
Lathe, 22x8 Connell-Gleason.	165.
Lathe, 22x12 Fifield, c.r., p.c.f.	650.
Lathe, 28x10 Ames, complete.	290.
Lathe, 30x9 New Haven.	460.
Lathe, 30x16 New Haven.	460.
Lathe, 30x12 Lodge-S. g.p. drive	1250.
Lathe, 34x22 New Haven.	800.
Lathe, 38x8 New Haven.	375.
Lathe, 40x16 Harris.	\$ 800.
Lathe, 60x10 New Haven.	850.
Lathe, 66x16 Pond, complete.	2000.
Lathe, Pratt-Whitney turret,	
1 7-32" hole.	350.
Miller, Garvin duplex.	800.
Miller, No. 7 Becker-Brainard,	
Lincoln	475.
Miller, No. 284 Bement, Lincoln	250.
Miller, No. 2 Cin. un., late type	1550.
Miller, Van Norman, bench	100.
Planer, 30x30x16 Bement, extra	
heavy	750.
Planer, 84x84x12 Pond, 2 hds.	2800.
Planer, 24x24x6 Lathe-Morse,	
universal milling head.	600.
Planer, 30x30x6 Cinti., 1 head	1000.
Press, No. 31-S Bliss, bk. grd.	700.
Press, No. 68-N Bliss	550.
Shaper, 36" Fellows gear shaper	1300.
Shaper, 18" Juengst.	200.
Slotter, 15" Bement.	460.

SECOND-HAND MACHINERY

FOR SALE BY

The Bicknell Mfg. & Supply Co.

Janesville, Wis.

Bars, cold rolled and mild.
Drills, 20" Hoefer.
Drills, 6-spindle, 3".
Drills, 6-spindle Garvin.
Engine, 80 h. p., Ames auto., and 50 k. w. direct connected generator, switchboard, etc.; never used; cost \$2600.; price, \$1500.
Engines, Corliss, 60 to 300 h. p.

Engines, 12x12 auto., 50 k. w. gen.
Keyseater.
Lathes, 14" to 24".
Lathes, new, 18", 26", 37".
Mch. bolts, 3" and 1"x26 & 27"(300).
Millers, slab, Garvin, Grant.
Screws—cap and set screws.
Shaper, 20", geared, shifting belt.
Steel (hi-speed tool) and cutters.

FOR SALE BY

Peninsular Machinery Co.,

110 Beaubien St., Detroit, Mich.

Beader, No. 024.
Beader, No. 8 Niagara, power.
Chuck, 24" 4-jaw. Ind.
Drill, 14" single spindle sensitive.
Drill, 12" Barr sensitive.
Drill, 4-spindle Bickford.
Drill, 14" Allen sensitive.
Drill, 24" heavy duty.
Forming roll, 14 ga. 48" long.
Grinder, emery, No. 3 Blount.
Grinder, cutter, No. 1 Garvin.
Grinder, twist drill, New Yankee.
Groover, No. 3 Niagara.
Hack saw, No. 11 Millers Falls.
Key lathe, 12" Cobb, double end.
Lathe, 14"x6" Fairbanks, c. r.

Lathe, 19"x10" LeBlond, automobile.
Lathe, 20"x8" LeBlond.
Miller, hand, No. 1 Whitney type.
Miller, Thurston die miller.
Miller, No. 14 LeBlond universal.
Press, double acting, double plunger, cam actuated, hold down 3" stroke, for fibre can work.
Screw machine, plain, No. 0 Foster.
Screw machine, plain, No. 1 Foster.
Screw machine, grd., No. 3 Foster.
Screw machine, grd., No. 10 Foster.
Speed lathe, 11"x4" Blount.
Speed lathe, 13"x5" Blount.
Speed lathe, 16"x6" Blount.

FOR SALE BY

The Osborne & Sexton Machinery Co.,

Columbus, Ohio.

LATHES AND TURRET LATHES.

13"x 5' Osborne & Sexton, new.
14"x 5' plain lathe, overhauled.
15"x 6' Osborne & Sexton, new.
16"x 6' Osborne & Sexton, new.
16"x 6' Blaisdell, overhauled.
18"x 8' Osborne & Sexton, new.
18"x 8' Wilson & L., overhauled.
18"x10' Gray, h. s., comp. rest.
18"x 6' Hamilton, h. s., d. b. g., new (5).
20"x10' Putnam, overhauled.

20"x 8' Hamilton, h. s., d. b. g., g. c., new, (4).
21"x14' Fifeild, comp. rest.
22"x12' Mueller, h. s., comp. rest.
23"x10' Blaisdell, overhauled.
15"x 6' Fox universal lathe.
16"x 6' back geared turret.
18"x 6' Mueller, turret on shears.
2"x24" Jones & Lamson.
1" Garvin hand screw machine.

SHAPERS AND PLANERS.

16" Hendey tool & die shaper.
22" Walcott geared shaper.
30" Smith & Mills, geared.

20"x20"x 4' New Haven.
30"x30"x 7' New Haven.
30"x30"x12' Pond planer.

MISCELLANEOUS.

Buffing lathes, all sizes.
Centering machine, 6" P. & W.
Cut-off machine, 3" Davis.
Die miller, No. 1 Thurston.
Drills, sensitive, 1, 2, 3 and 4 spindle.
Drill, Avey 3-spindle high speed.
Drill, 32" sliding head.
Gas engines, 4 to 150 h. p.
Grinder, tool, Gleason.
Hammers, drop, 750 & 3500 lb. Toledo.
Miller, B. & S., small, power.
Milling and drilling machine.

Motor, 40 h. p. Allis Chalmers, 3-ph.
Pipe machines, 2", (3).
Radial drill, 30" Keystone.
Radial, 5" Universal.
Riveter, 1/4" Shuster, 20" throat.
Rolling mill, 22"x12" Toledo.
Shear, squaring, 56"
Shear, squaring, 36" gap, 15" cap.
Straightening rolls, 30".
Tapper, vertical, Garvin.
Threading mch., Webster & Perks.
Variable speed transmission, Reeves.

SECOND-HAND MACHINERY

FOR SALE BY

Philadelphia Drying Machinery Co.,

6721 Germantown Ave.,

Philadelphia, Pa.

LATHE.

Lathe in first-class condition, manufactured by James Moore, Philadelphia: length of bed 17', will swing 36" over bed, 11'2" between centers; solid spindle; hand and gear feed; fitted with Union Mfg. Co. 18" 4-jaw clutch and 18" face plate; full set of gears for screw cutting, also plain countershaft with five cones on drive pulley for 34" belt.

FOR SALE BY

J. L. Osgood,

45 Pearl St., Buffalo, N. Y.

Automatics, Cleveland plain, (3), one with magazine.

Cutting-off machine, 2" H. & R.

Cylinder borer and grinder, 24"

Davis, jigs and cutter bars.

Disc grinder & press, No. 6 Gardner.

Drill, 14" Reed, and chuck.

Drill, 20" Snyder, p. f. and a. s.

Drills, 20" Davis, b. g., a. f., (2).

Lathes, 11"x4' Reed, r. & f. rest, chuck fitted.

Lathe, 12"x5' Robbins, r. & f. rest.

Lathe, 14"x6' Reed, r. & f. rest.

Lathe, 18"x6' Hamilton, c. r., chuck fitted.

Lathe, 18"x12' Greaves & K., c. r., chuck fitted.

Miller, plain, No. 134 Garvin.

Miller, Lincoln, 12" Cincinnati.

Pipe machine, No. 7 Jarecki, 2" cap.

Piston & ring mch., Gridley, motor.

Power press, Dodge, 1" throat, 24" fly wheel.

Screw machines, hand, B. & S. No. 0, new, (2).

Screw machines, No. 1 B. & O., 13-16" cap. (2).

Screw machines, No. 2 B. & O., 1" cap., (6).

Screw machines, No. 4 B. & O., 14" cap., (6).

Shaper, 16" Gould & Eberhardt.

Squaring shear, 30" Niagara, foot.

Testing machine, 100,000-lb. Olson.

Thread miller, 6"x48" P. & W.

Turret lathe, 20"x8' Fay & Scott.

FOR SALE BY

Frank Toomey, Inc.,

127-131 N. Third St., Philadelphia, Pa.

LATHES AND TURRETS.

26"-48"x12' new dbl. spd. McCabe lathes, heavy pattern, (11).

26"-48"x18' new dbl. spd. McCabe lathes, heavy pattern, (2).

28"x15' Harrington.

26"x14' Star.

24"x10' Putnam.

20"x8' Prentiss.

20"x10' Flather.

19"x8' Rahn-Mayer.

19"x10' Rahn-Mayer.

19"x8' new Sidney, swing 21".

17"x8' new Sidney, swing 21".

17"x8' new National, q. c. g., (9).

16"x8'6" Blaisdell.

14"x10' Prentice, t. a.

13"x7½" new Carroll Jamieson.

12"x5' new Shepard, (5).

40" swing Conradson semi-automatic turret, 34" hollow spindle.

2"x24" Jones & Lamson, (2).

14"x8' Bridgeport turret lathe.

8" P. & W. hand screw machine.

No. 00 B. & S. auto. screw machine.

5-16" Hartford auto. screw machine.

MISCELLANEOUS.

Boring mill, car wheel, 36" Baker.

Boring mill, vertical, 94" Sellers.

Drill, 24" Sibley & Ware.

Drill, 30" Hamilton.

Drill, 36" Baker.

Drill, 36" Currie & Snyder.

Hammer, steam, 250 lb. Niles.

Hammer, steam, 600 lb. Morgan.

Hammer, steam, 800 lb. Wood.

Miller, No. 23 Brown & Sharpe, plain, table 50"x10".

Planer, 18"x18"x8' Pond.

Planer, 22"x22"x6' Powell.

Planer, 33"x33"x12' Woodward.

Planer, 48"x48"x15' Sellers.

Radial drill, 30" Gang.

Radial drill, 42" Betts.

Ring grinder, wet, No. 210 Heald.

Shaper, 18" Bement, traveling head.

Shaper, 24" American, b. g.

Vertical attachment index head, hand and power, No. 34 Fox.

Send for complete list.

SECOND-HAND MACHINERY

FOR SALE BY

The Machinery Warehouse, 3705 S. Ashland Ave., Chicago, Ill.

SHAPERS.
60" Morton traveling shaper. 16" Cincinnati, used four months.
PLANERS.
36"x36"x16' Sellers, 1 head. 54"x54"x21' Sellers, 3 heads.
PUNCH AND SHEARS.
7" Milwaukee alligator shear. 12" Milwaukee alligator shear.
12" Columbus splitting shear. 24" Columbus vertical punch.
All the above tools are in stock and ready for shipment, with condition guaranteed.

FOR SALE BY

Herman L. Winterer, 908-910 Beach St., Philadelphia, Pa.

ENGINE LATHES.
39"x26' New Haven. 24"x12' Flather.
38"x18' Lodge & Davis. 18"x16' Schumacher & Boye.
26"x21' Bement. And many other of smaller sizes.
TURRET LATHES.
14" Jones & Lamson, chucking. 60"x10' Henley.
2"x20" Potter & J., chucking, (2). 37"x10' Lodge & S., b. g., 5" h. s.
4"x28" Niles-Bement-Pond "Milwaukee", rigid. 30"x 5' Lodge & S., b. g., 24" h. s.
24"x 8' Blaisdell.
DRILL PRESSES.
30" Gang radial. 24" drills, several.
40" Bement-Miles. 21" Baker high speed, (2).
30" Bement.
MISCELLANEOUS.
Bolt cutter, 1 1/2" Acme, single head. Planer, 24"x6' Fitchburg.
Bolt cutter, 1 1/2" National, sg. head. Planer, 24"x8' Fitchburg.
Bolt cutter, 3" Acme, single head. Planer, 25"x10' Fitchburg.
Bolt cutter, 1 1/2" National, dbl. head. Slab miller, 16"x4 1/2' Newton.
Boring and turning mill, 42" Bullard, Slab miller, 20"x 4 6" Franklin.
rapid production.
Large assortment of Boilermakers' and General Machinery.
Send for complete list.

FOR SALE BY

Chas. Molitor Machinery Co., 215-221 S. Clinton St., Chicago, Ill.

LATHES.
12"x6' Davis, change, taper, collets. 32"x14' Putnam.
12"x6' Sebastian. 26"x12' Hamilton.
20"x10' Whitcomb-Blaisdell. 22"x14' Fifield.
52"x16' New Haven.
SHAPERS AND PLANERS.
16" Rockford, geared. 30"x 7' Whitcomb.
26" Steptoe. 30"x 8' Fitchburg.
26" Davis & Egan. 20"x 6' Wheeler.
26" Walcott. 24"x 6' Pond.
14" Lodge & Davis.
MILLERS.
No. 1 1/2 Rockford, geared.
DRILL PRESSES.
20" Mechanics, 2 spindle. 40" New Haven.
36" Grant universal. Baker Bros. boring mill.
31" Gould & Eberhardt.
SCREW MACHINES.
1 1/2" Pratt & Whitney, (2). 1 1/2" Foster-Kimball.
MISCELLANEOUS.
Power roller, 6"x10'. Turret, 16" Springfield Fox.
Punch press, No. 208 Toledo.
Large stock. Write for list.

72-in. PLANER

Wm. Sellers & Co.'s spiral geared iron planer, 72" wide, 72" high, table 12' in length, four (4) heads, two on rail and one on each housing, countershaft and regular equipment, still set up in place where used. Special price before moving to our warehouse.

62-in. PLANER

Betta Machine Co.'s spur geared iron planer, planes 62" wide, 62" high and 28' in length, with two (2) heads on crossrail, countershaft and regular equipment. Special price to sell direct from shop.

60-in. PLANER

Wm. Sellers & Co.'s spiral geared iron planer, 60" wide, 60" high, table 14' in length, with 4 heads, two on rail and one on each housing, c. s. and regular equipment.

42-in. PLANER

Pond Machine Tool Co.'s spur geared iron planer, 42" wide, 42" high, 12' long, with 2 heads on crossrail, c. s. and regular equipment.

36-in. PLANER

Wm. Sellers & Co.'s 36" high and 10' in length, with 4 heads, two on crossrail and one on each housing, countershaft and regular equip.

40-in. ROTARY PLANER

Newton Machine Tool Works' 40" motor driven, with motor complete, good as new; extra base plate.

90-in. BORING MILL

Pond Machine Tool Co.'s heavy pattern, widened to 110", 2 heads on crossrail, complete with c. s. and full equipment, A-1 condition.

84-in. BORING MILL

Pond Machine Tool Co.'s 84" swing, two (2) heads on crossrail, countershaft and regular equipment.

72-in. BORING MILL

Niles Tool Works, with two (2) heads, countershaft, complete.

51, 42 & 36-in. BORING MILLS

Niles Tool Wks., Bullard and Brown & Sharpe double head mills, ranging in size from 51" down to 36".

PLANER TYPE MILLING

MACHINE, 24 in. x 14 ft.

Ingersol Milling Machine Co.'s 24" x 24" x 14' with horizontal spindle.

PLANER TYPE MILLING

MACHINE, 24 in. x 6 ft.

Ingersol 24" x 24" x 6' with horizontal spindle, arbor and cutters.

TIRE LATHE

42" swing Niles Tool Works' double head, open center drive.

BOILER SHOP TOOLS— PUNCHES AND SHEARS

16" throat to 60" throat, single and double end Long & Allstatter, Cleveland, etc.

BOILER PLATE PLANER

14 ft., for edge planing.

62-in. LATHE

New Haven Co.'s triple-gear 60" swing, 24' bed, extra large face-plate for end of spindle.

56-in. LATHE

Putnam Machine Co.'s triple-gear 56" swing, 28' bed, countershaft and full equipment.

LATHES

18 to 48-in. Swing

All sizes, high grade lathes, 18" to 48" swing, various lengths, Schumacher & Boye, Pond, Putnam, etc.

TURRET LATHES

Gisholt, 24" swing.

Garvin, 24" hole through spindle.

Potter & Johnson, 20" swing, 2" hole in spindle.

8-in. BAR, HOR. BORING

MACHINE

Niles-Bement-Pond "Floor Type" horizontal spindle milling drilling and boring machine, with 8" bar, adjusted vertically on column to a height of about 14'. Column moves along the bed automatically 24'.

RADIAL DRILLS

2½ ft. to 7 ft. Arms

Bickford, Niles, Drees and Ridgway, 2½ to 7' arms, plain and universal, with and without speed-box.

UPRIGHT DRILLS

36" Prentice Bros. sliding head.

32" Prentice Bros. sliding head.

22" Baker, heavy pattern, hi-speed.

MULTIPLE DRILLS

16 and 18-spindle, Baush.

STEAM HAMMERS

1000 lb. to 4500 lb.

Single and double frame steam hammers, 1000 lb. to 4500 lb. Bement-Miles, Sellers, etc.

NEW LATHES

Immediate Shipment

3—14" swing, 6' bed.

1—14" swing, 6' bed, quick change.

6—16" x 8'.

1—16" x 8'.

1—16" x 8', quick change.

4—18" x 8', semi quick change.

3—18" x 8', quick change.

10—24" x 10' with 3-step cone, and double back gears, for 4" belt.

10—McCabe's double spindle 26-48" swing, 12' bed, for shells up to 12".

J. J. McCABE, 149 Broadway NEW YORK

Some Lathes

No. 79—22"x16" Double Head
5-Step Cone Head Lathe.
No. 87—24"x12" Friction Head
Lathe.

No. 30—Gridley Automatic 3 $\frac{1}{2}$ "
single spd. belt driven Turret.
No. 47—Gridley Automatic 3 $\frac{1}{2}$ "
single spd. belt driven Turret.

OTHER MACHINES

No. B—36"x36"x12" Niles Sin-
gle Head Planer.
No. 1337—Crompton, Knowles
Loom Works Keyseater, 60"
stroke, 48" swing.
No. 661—Globe Tool Sharpener
for 4"x8" wheel.
No. 680—Safety Tool Grind-
4"x32" emery wheel.
No. 1379—Universal Swivel
Table for radial drill.
No. 515—Oliver No. 3 Wood
Trimmer on pedestal.
No. 690—Marion Buffing Mch.

No. 1607—Bowsher Balancing
Ways.
No. 1336—No. 00 Sturtevant
Blower.
No. 2531—Sturtevant Blower,
2 $\frac{1}{2}$ " outlet.
No. A-2033—Laidlaw-Dunn-
Gordon Duplex Feed Pump.
No. 60—Covel Mfg. Co. Auto-
matic Circular Saw Sharpener.
No. 2033—Commercial Electric
D. C. 40 k. w. 110 volt Gener-
ator, compound wound.
1—15 h. p. Gas Engine, 215 rpm.

USED MOTORS

1— $\frac{1}{2}$ h. p. Triumph Electric D. C., 110 volt, 1100 r. p. m.
1—5 h. p. Reliance D. C. 220 volt, 1150 r. p. m.
1—3 h. p. General Electric 220 volt, A.C., 60 cycle, 3 phase, 1800 r.p.m.
1—1 $\frac{1}{2}$ h. p. Bullock, 220 volt, D. C., 600 r. p. m.
1—5 h.p.G.E. 500 v., shunt wound, type c.r., 5 sp. var 500 to 1000 rpm.
1—3 $\frac{1}{2}$ h. p. W.E. 110 or 220 v., d. c., variable speed, 400 to 1675 r.p.m.
1—5 h. p. Reliance D. C., 220 volt, 1150 r. p. m.

**The Lodge & Shipley Mch. Tool Co., Cincinnati, Ohio,
U. S. A.**

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PLANERS.

- 34"x24"x 8' Smith, 1 head.
- 32"x32"x 8' Gray, 2 heads, fine condition.
- 38"x36"x10' New Haven, 1 head, good condition.
- 37"x37"x15' Lane, good running condition.
- 60"x60"x18' Betts, 1 head, extra floor jack, with side head.
- 30"x30"x 8' Bement Dougherty, arranged as surface grinder, 12" cup wheel, motor driven, pump and piping, good condition.

LATHES.

- 3 14"x 8' OMACO, compound rest, hollow spindle, q. c. g., feed box, screw cutting, new, prompt delivery.
- 1 15"x 8' Prentice, comp. rest, hol. spindle, full equipment, A-1 condition.
- 1 18"x10' Monarch, compound rest, heavy duty, 2-step cone for 5" belt, good condition.
- 1 20"x10' Bogert, heavy duty, 4-step cone, plain rest.
- 1 22"x12' Fifield, compound rest, hollow spindle.
- 1 30"x31' Ohl & Co. triple geared, compound rest.
- 1 38"x14' New Haven, compound rest, fine condition.
- 1 20"x10' Whitcomb-Blaisdell, compound rest, double back gears, q. c. g., feed box, power cross feed, A-1 condition, heavy duty type, 3 step cone.

MILLING MACHINES.

- 1 42" Ingersoll slab miller, heavy type, horizontal arbor and 1 side spindle.
- 1 12' Niles Boring and Turning Mill, table 8 $\frac{1}{2}$ ' diam., 2 swivel heads, good operating condition and cheap.
- 1 7' Pond Boring and Turning Mill, 2 swivel heads, fine condition.

CRANES.

- 3 $\frac{3}{4}$ -ton Shaw Electric Traveling Cranes, 220 v., d. c., 22 to 27' 9" spans, good as new.
- 1 5-ton Bay City Locomotive Crane, stand, gauge.
- 1 5-ton Shaw Elec. Traveling, 110 v., d. c., 50' span, fine condition.
- 1 10-ton Niles Elec. Traveling, 110 v., d. c., 50' span, fine condition.

FORGING MACHINES.

- 1 1" Acme Steel Frame Upsetter or Bolt Header.
- 1 1 $\frac{1}{2}$ " Acme Steel Frame Upsetter or Bolt Header.
- 1 2" Ajax Steel Frame Upsetter or Bolt Header.
- 1 3" Ajax Steel Frame Upsetter or Bolt Header.
- 1 3 $\frac{1}{2}$ " Ajax Steel Frame Upsetter or Bolt Header.
- 1 5" Ajax Iron Frame Upsetter or Bolt Header.

PRESSES.

- 2 No. 5-A TOLEDO Open Back Inclined Punch Press.
- 1 No. 55 $\frac{1}{2}$ TOLEDO Straight Sided Bulging Press, geared.
- 1 No. 52 TOLEDO Power Arch Press, geared.
- 2 No. 51 TOLEDO Power Arch Press, geared.
- 1 No. 162 TOLEDO Toggle Drawing Press.
- 1 No. 165 TOLEDO Toggle Drawing Press.
- 1 No. 42 TOLEDO Special Forming and Shearing Press.
- 1 No. 25 TOLEDO Double Action Cam Drawing Press.
- 1 No. 12 TOLEDO Blanking Press.
- 1 No. 34-A BLISS Toggle Drawing Press.
- 1 No. 4 BLISS Toggle Drawing Press.
- 1 No. 74 $\frac{1}{2}$ BLISS Straight Side Trimming Press.
- 1 14" RELIANCE Bolt Cutter, with set dies and countershaft.

We have other machines too numerous to list. Send us your inquiries. What have you to sell? Advise us, we can help you.

D. M. Osborne Machinery Co.

917 American Trust Bldg.,

Cleveland, Ohio

First Class Used Machine Tools

Engine Lathes.

18"x 8' Lodge & Shipley, q. c.
18"x 8' Lodge & Barker.
18"x10' Rahn-Carpenter.
20"x10' Prentice, taper.
20"x14' Rahn Carpenter.

25"x10' LeBlond, turret.
28-40"x10' Fay & Scott.
30"x12' Blaisdell.
36"x27" New Haven.

Screw Machines and Turret Lathes.

1" Garvin.
No. 24 Pratt & Whitney.
14" Wood Tilted, geared.
3"x36" Pratt & Whitney.

15" American, brass.
21" Universal.
21" Gisholt.
24" Morse.

Drill Presses.

23" Barnes, w. & l.
28" Barnes, sliding head.
32" Hamilton, sliding head.
34" Morris, radial.

34" Roos & Mills, radial.
2-spindle Rockford.
4-spindle Gardam.
4-spindle Slate.

Shapers.

20" Hendey, belt.

24" Gould & Eberhardt, crank.

Planers.

26"x26"x6' Flather.
32"x32"x8' New Haven.

36"x36"x12' American, one rail head
and one side head.

Milling Machines.

No. 2 Hisey, plain.
No. 2 Kempsmith, plain.

6"x48" Pratt & W. thread miller.
No. 4 Becker, vertical.

Keyseaters.

No. 2 Mitts & Merrill.
No. 3 Mitts & Merrill.

No. 00 Baker Bros.

Boring Mills.

30" Baush, turret head.
No. 1 Barnes, horizontal.
No. 34 Binsse, horizontal.

34" bar, Bement.
No. 1 Franklin, tool room.

Punch Presses.

No. 12 Wold, o. b. i.
No. 42 Bliss, o. b. i.
No. 19C Bliss, o. b. i.
No. 119 Crosby, o. b. i.

No. 21 Consolidated, homing.
No. 3 Bliss, solid back
No. 68-N Bliss, double acting.
No. 12-A Adriance, drawing.

Miscellaneous.

Axle lathe, Niles.
Bending roll, 12".
Bolt cutter, 14" Acme.
Bulldozer, No. 4 Williams & White.
Cold saw, No. 1 Burr.

Cold saw, Espen-Lucas.
Pipe machine, 6" Bignall & Keeler.
Riveter, 3-16" Shuster.
Riveter, 1" Grant.
Slotting machine, 12".

Rumely-Wachs Machinery Co.

121 N. Jefferson St., Chicago, Ill.

ReMANUFACTURED -(ORIGINATED BY US)- MACHINE TOOLS

FOR QUICK SHIPMENT

Partial List of Largest Stock in the World

PLANERS.

- 2-37"x46"x18' W. & P., 4 hds.
- 1-76"x48"x18' W. & P., 3 hds.
- 1-48"x36"x12' Cincinnati, 3 heads.
- 1-48"x36"x 8' W. & P., 1 head.
- 1-42"x42"x14' W. & P., 2 heads.
- 1-36"x36"x17' Powell, 2 heads.
- 1-36"x36"x10' Pond, 2 heads.
- 1-36"x36"x10' Gray, 2 heads.
- 1-36"x30"x 8' W. & P., 2 heads.
- 1-33"x33"x 8' Ohio, 2 heads.
- 1-30"x30"x 6' Pease.
- 1-27"x27"x 7' Flather, 2 heads.
- 2-27"x27"x 6' Ohio.
- 1-26"x26"x 7' Gray.
- 1-26"x26"x 6' Hendey.
- 1-24"x24"x 6' Gray.
- 1-24"x24"x 6' Pond.
- 3-24"x24"x 6' American.
- 1-24"x24"x 6' Flather.
- 1-24"x24"x 6' Whitcomb.
- 1-24"x24"x 6' Davis & Egan.
- 1-22"x22"x 6' American.
- 1-22"x22"x 5' Gray.

LARGE MILLERS.

- 1-No. 3-B Kearney & Trecker.
- 1-No. 2-B Univ. Kearney & T.

VERTICAL BORING MILLS.

- 2-54" Colburn.
- 1-47" Baush.
- 1-44" Baush.
- 1-42" King.
- 1-42" Putnam Car Wheel.
- 1-41" Bullard.
- 1-41" Baush.
- 1-37" Baush & Harris.
- 1-34" Bullard.
- 1-4-spindle Foote-Burt.
- 3-2-spindle Foote-Burt.
- 2-24" Bickford.
- 7-20" and 2-19" Baker.

LARGE LATHES.

- 1-60"x164" Fitchburg.
- 1-46"x18' New Haven.
- 1-42"x12' Putnam.
- 1-40"x16' Gleason.
- 1-36"x14' Fitchburg.
- 1-31"x12' Bradford.
- 1-30"x24' Bradford.
- 1-30"x17' Lodge & Shipley.
- 1-26"x12' Davis.
- 1-26"x12' LeBlond.
- 1-26"x12' American.
- 1-26"x10' Greaves & Klusman.
- 1-25"x26' American.
- 1-25"x14' Bradford.
- 1-25"x12' Walcott.
- 1-24"x12' Blaisdell.
- 1-24"x12' New Haven.
- 1-24"x12' Draper.
- 1-24"x10' New Haven.
- 1-24"x10' American.
- 1-22"x16' Flather.
- 1-22"x12' LeBlond.
- 1-22"x12' Greaves & Klusman.
- 1-22"x10' American.
- 1-22"x10' Whitcomb-Blaisdell.
- 1-22"x10' Schumacher & Boye.
- 1-22"x 8' Flather.
- 1-21"x16' LeBlond.
- 1-21"x14' Flather.
- 1-21"x12' LeBlond.
- 1-21"x12' Bradford.
- 1-20"x12' Flather.
- 1-20"x12' Hamilton.
- 1-20"x12' Draper.
- 3-20"x10' American.
- 1-20"x 8' Greaves & Klusman.
- 1-20"x 8' Bullard.
- 1-20"x 8' American.
- 1-20"x 6' Lodge & Shipley.
- 1-20"x 4' Flather.
- 1-19"x12' Lodge & Davis.

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Go into any shop equipped with the "New Britain" benching system, and the sightly, solid, businesslike looking benches attract your favorable attention at once. Nor must the effect of such equipment upon the workman and his work be lost sight of.

And it is even more serviceable than sightly. The patented stringer feature adds the final element of absolute rigidity and freedom from end sway. It requires no wall support, and may be rearranged or moved without damage. It requires fewer legs—eight feet apart, less lumber and less labor, costing less than inferior benching.

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